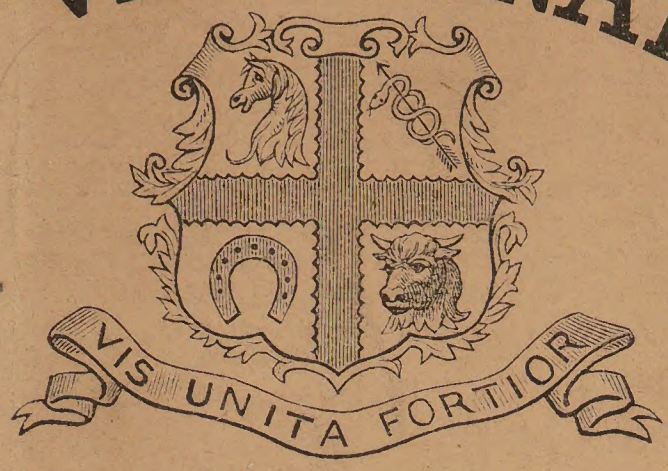
A New Work on Horse-shoeing. *See p. 3, Advertisements.*

VOL. LXX.—No. 835.] [FOURTH SERIES, No. 511.

THE VETERINARIAN,



A MONTHLY JOURNAL OF VETERINARY SCIENCE.

JULY, 1897.

EDITED BY PROFESSOR METTAM.

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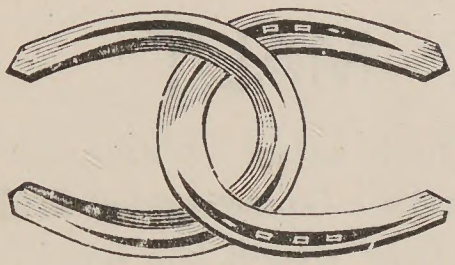

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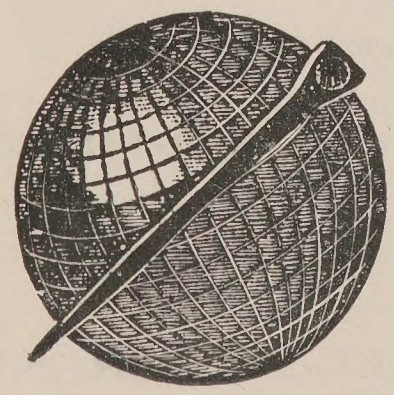

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Further particulars will shortly be announced.

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and inclined towards each other, forming three angles, the middle posterior angle being open at the back for the reception of the frog, the two lateral facing forwards and grasping the posterior prolongations of the sole.

The horny wall presents an outer (anterior) smooth, slightly ribbed, or undulating surface, convex from side to side (fig. 44), and an inner (posterior) and correspondingly concave surface (figs. 47 and 48); an upper border in contact with the cutis, and a lower which marginates the sole. The upper (fig. 44, *a*) is generally known as the coronary border, whilst the lower (figs. 45 and 46, *a*) is termed the plantar or bearing border.

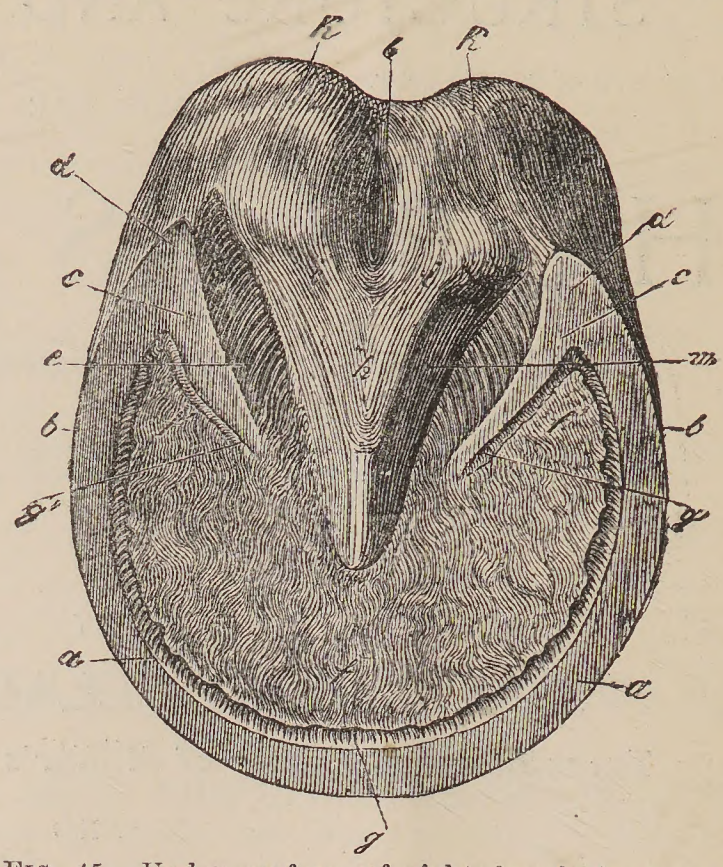


FIG. 45.—Under surface of right fore-foot. *a*, *a*, bearing surface of toe; *a*, *b*, of quarters; *b*, *c*, of heels; *d*, commencement of bars; *e*, lateral aspect of bars; *f*, sole; *f'*, seat of corn; *g*, white line, which is seen to be reflected forwards between sole and bars at *g'*; *h*, horny frog; *i*, bulb or glome of frog; *k*, bulb of heel; *l*, median lacuna or cleft of frog; *m*, lateral lacunæ of frog.

For convenience of description the wall may be divided by imaginary vertical lines; thus, one drawn through the centre of the hoof will divide the wall into an inner and an outer half (inner and outer walls), or four lines may be so drawn as to divide the wall into five equal parts, termed respectively the toe, the inner and outer quarters, and the inner and outer heels.

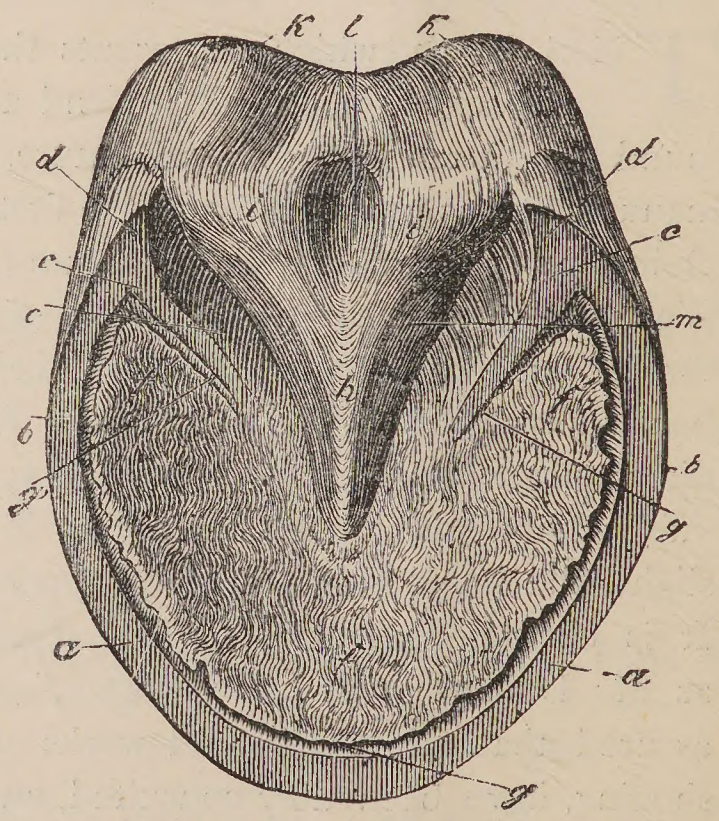
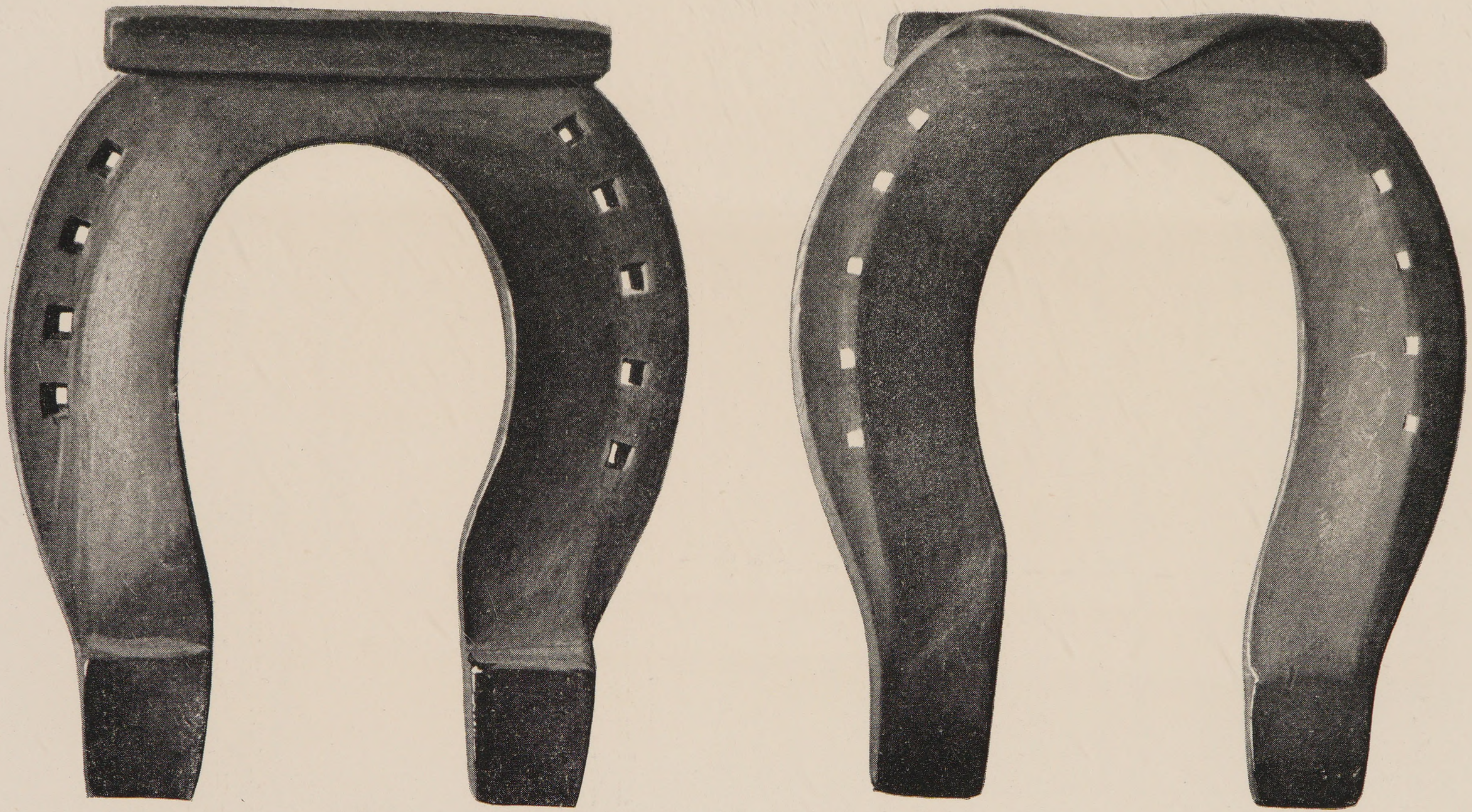


FIG. 46.—Under surface of right hind-foot. The lettering is as in fig. 45.

(*a*) The anterior portion or toe (fig. 44 from the point of the



Scotch Cart Horse Shoe, with Calkins and Toe-piece (one of the 70 odd Special Plates).

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THE FORE SHOE.

As a rule, a good workman will be content with six bars in the fire at one time, each pair being laid horizontally, alongside, and as close as possible to the preceding pair. The bars inserted are at once covered with dry coal, the bellows worked vigorously, and once the fire is found to be going well a few shovelsful of damp coal are scattered over all. During the time the first doorman is preparing the fire and heating the bars the fireman and second doorman will have cut a couple of dozen lengths of iron.

Forging a Fore Shoe.—As soon as the first pair of bars is seen to have reached a regular bright cherry-red heat, the fireman grasps a bar in his tongs and, withdrawing it, lays one end on the head of a sledge held by doorman No. 1, near the heel of the anvil, and, allowing it to rest lengthwise on the anvil, strikes with his turning hammer near the centre in turn with the second doorman, who, of course, uses a sledge. He then lays it edge up on the flat of the anvil, and the two doormen, striking alternately, and working from toe to heel, draw down the bar and partly form (bend) the shoe. The bar is then transferred to the beak of the anvil, and, still working from toe to heel, is still more drawn down, while, by reason of the manner in which it is held, the foot surface is fashioned rather wider

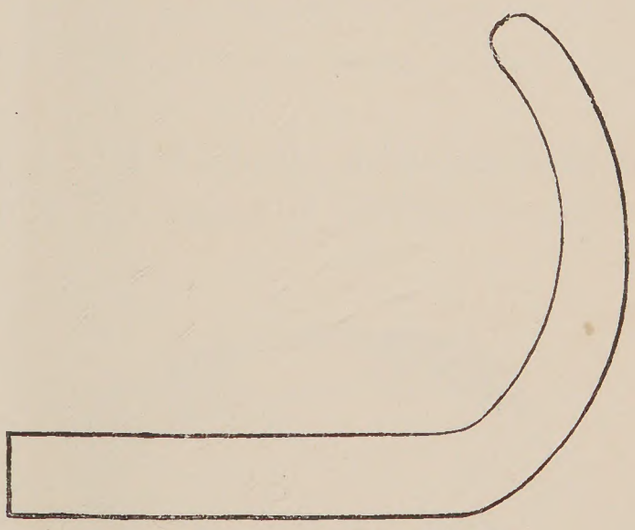

FIG. 94.—Partly completed fore shoe.

than the ground surface, to allow for subsequent dilatation as the ground surface caused by punching nail holes. Shoes to be afterwards fullered must be made *much* wider, as the fullering drives out the edge of the shoe to a considerable extent. It is at this stage, when the shoe is transferred to the beak, that it acquires the form necessary for a right or left foot

excessive precautions taken in the case of the latter are not necessary.

2. *Hunters.*—The ground surface of hunting shoes must be formed with due regard to the prevention of slipping and the minimising of suction in deep ground. This is obtained by dishing out the ground surface, the dished portion terminating

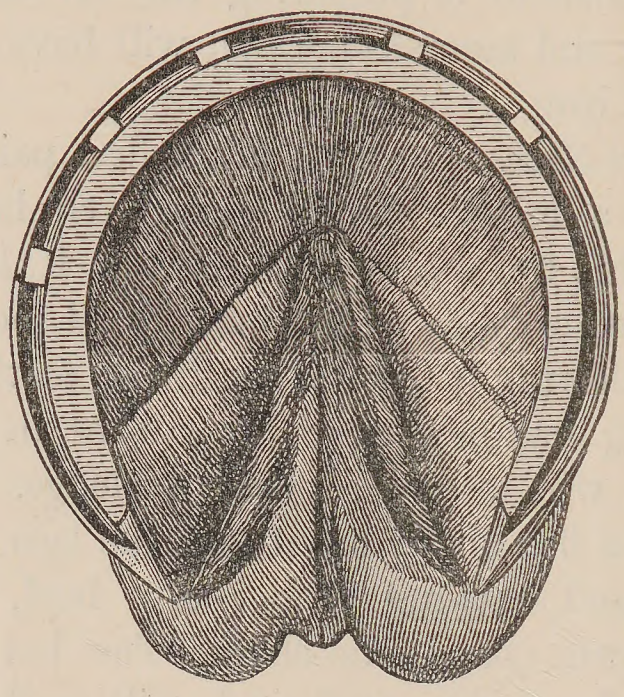

FIG. 218.—Fullered front shoe for hunter.

just in front of the heel at a sharp angle. The greatest care should be taken to prevent overreaching, and all hunting shoes should be of particularly good construction, neither too broad nor too heavy.

The concave shoe herewith illustrated is a very favourite hunting shoe. It possesses the advantage of being light, giving

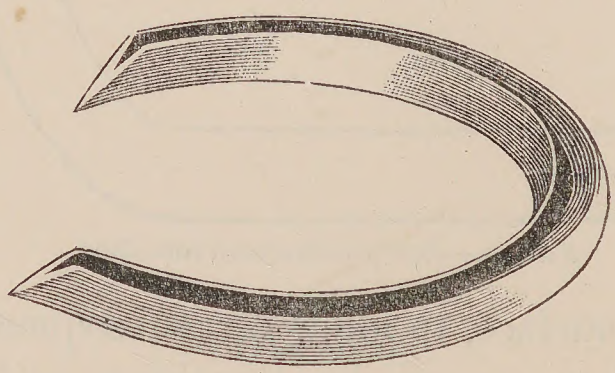

FIG. 219.—Lateral view of concave front shoe for hack or hunter.

a good foothold, and, owing to the slope of the heels, which may if necessary be slightly embedded in the horn of the wall,

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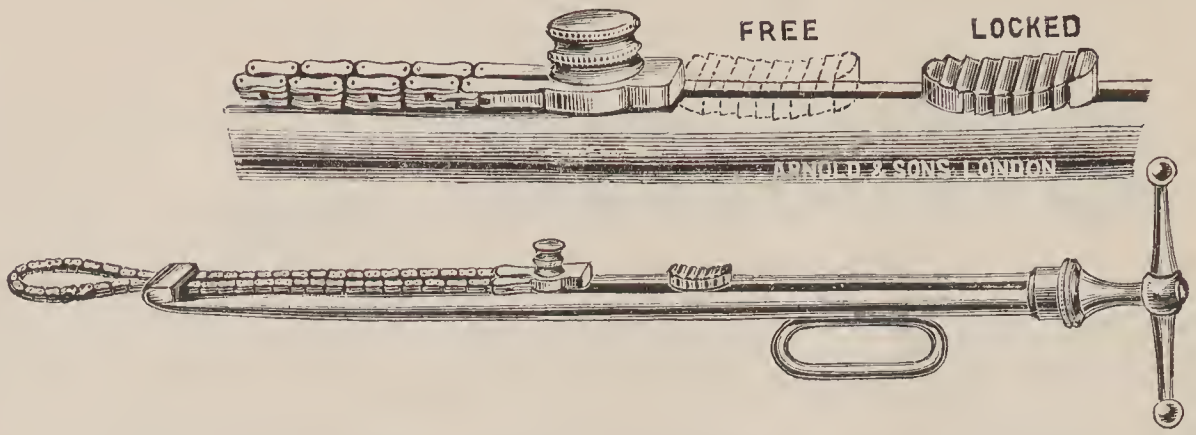

Vide "Veterinarian," April, 1896; "Veterinary Journal," April, 1896.
Extract from the "Veterinary Record," March 28th, 1896.

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Communications.

ON POST-EMBRYONAL DEVELOPMENT. APPROACHED FROM A STATISTICAL STUDY OF THE INCISOR TEETH OF THE HORSE.*

By Alexander Meek, M.Sc., F.Z.S. Illustrated with radiographs by T. H. Havelock, B.Sc., the Durham College of Science, Newcastle-on-Tyne.

It is extremely difficult to get sufficient material to indicate by measurements and enumerations the actual changes occurring in structural parts during life. As far as the growth of the whole animal is concerned, we already possess a good deal of observation and measurement, and especially is this the case for certain marine forms. This has been done for the more important fishes, in which case not only have measurements at successive stages of the embryo been made as an aid to identification, but the manifest importance of determining the relation of size and age to maturity has led to much patient investigation of the adult. And, again, the latest approach to the study of problems of evolution from the mathematical side has been made on the basis of an elaborate series of measurements. These studies have served to emphasise that variation is not merely a product of environment, but that variation occurs under the same conditions—that there is a tendency to vary. The possibilities of variation are indicated, and as

* The conclusion of this paper will contain twelve large collotype plates from radiographic pictures.

seems to be the case in Mr. Weldon's investigations, a seasonal variation may occur.

But while these researches are most interesting and important in co-ordinating our ideas in regard to variation, the simple later ontogenetic history of structural elements is still very vaguely stated, and well deserves, when possible, a similar careful investigation. The difficulty of obtaining sufficient material of known age is obviously great, and the difficulties of comparative research are often greater still. In approaching this subject of what might be called post-embryonal development from a study of the teeth of the horse, I have the advantage of taking up a part which has already been much investigated. The importance of the incisors of the horse in telling the age has led to these being subjected to much close examination in this country and on the Continent. I have the still greater advantage of the work being entirely macroscopical.

I collected in Aberdeenshire and Banffshire a fairly representative collection of the incisor portions of the upper and lower jaws of the horse; and for the large majority of these I have to thank Mr. William Simpson, Douglasbrae, Fife-Keith. I was not very willing to use up much of this very valuable material, for the "mouths" are not merely guessed to be of the age given. They were marked after inquiries had been made as to age, so that they may be taken to be something more than approximately correct. I was then much delighted to find that Mr. Havelock, working under the direction of Professor Stroud, had been able to make radiographs of teeth *in situ*. He, at my suggestion, made a series of radiographs of representative lower jaws, and these form the basis of the present investigation.

The radiographs were made by simply laying the lower jaw in its natural position upon the protected photographic plate, and exposing it to the rays. The projected shadows are naturally a little larger than the structures represented, but the average result should be fairly comparative, seeing that the source of the rays was kept at the same distance in each case.

The prints made from the negatives are interesting also in showing the relative permeability of the Röntgen rays through bone and the structural parts of the teeth. The latter are distinctly shown as strong shadows, and the bone is more transparent between them. The enamel layer may often be traced as a dark band where it has presented its cross section to the rays; on the face in the

younger specimens particularly it is to some extent transparent. The dentine and crusta petrosa are still more penetrable. The felted cancellous network outside the alveoli is well shown, and often presents even darker lines than the teeth.

For the purpose in view it was more interesting, however, to find that the teeth were distinctly visible in their alveoli. The results of the measurements were so conflicting with accepted opinions in regard to the teeth that a large number of sections was made and carefully measured. The observations referred particularly to the adult teeth, but the incidental measurements of the milk teeth may be recorded as well.

Temporary Incisors.—The first pair of incisors are distinctly seen, though they have not yet pierced the gum, before birth, and they emerge at or about birth. It is also well known that the second incisors emerge about a month later, and the third incisors usually during the ninth month. They are replaced about two and a half, three and a half, and four and a half years respectively.

The following numbers give the measurements of the lower milk incisors in millimetres as measured from the radiographs.

Age.	1st.	2nd.	3rd.
8 to 9 months . . .	48	45	33
2 years	44	46	54
3 „	—	44	50
3 „	—	47	45
4 „	—	—	40 (approx.)

And the following numbers express the extreme length, &c., in millimetres as actually measured on the specimens.

Lower Incisors.

	1st.			2nd.			3rd.		
Age.	Extreme length.	Crown.	Root.	Extreme length.	Crown.	Root.	Extreme length.	Crown.	Root.
Just before birth	20	—	—	20	—	—	—	—	—
8 to 9 months R.	44	16	30	—	—	—	—	—	—
11 months . .	43	13	34	46	16	30	34	20	14
21 „ . .	45	12	36	47	11	35	49	15	35
34 „ . .	—	—	—	44	12	33	43	17	26
3 years . . .	—	—	—	50	11	39	41	14	27
4 „ . . .	—	—	—	—	—	—	38	13	25

Upper Incisors.

Extreme length only.

Age.	1st.	2nd.	3rd.
11 months . . .	41	43	30
21 „ . . .	40	44	45
34 „ . . .	—	36	38

These measurements are not sufficiently numerous to state the exact average amount of growth and wear. But in general language the first incisors develop rapidly during the first year, but little or nothing during the second year. The measurements of the roots indicate this, and in the radiographs of the 8 to 9 months and the 2 years the root is approximately of the same length. During the second year also the developing adult first incisor causes considerable change to its predecessor. The bony barrier between them is first absorbed, and then the posterior face of the root is absorbed until the root is scooped out into a thin shell. The adult tooth is received into the cavity, and as it grows it carries the milk tooth up with it.

The second incisors similarly develop rapidly during the first year, and attain a greater length than the centrals. A little more is added to the length during the second year. The root is absorbed in the same way as that of the first incisors. On each of these teeth the posterior face of the root, which otherwise is flattened, is produced into a well-marked ridge, and it is the progressive absorption of this which to a large extent reduces the tooth to a crown and a shell-like root. The shoulder between them receives the crown of the successor, and the temporary tooth is in this way lifted out.

The third incisors grow rapidly during the first two years, and the larger number of measurements here indicate, moreover, the absorption of the root, and the wear which the apposition of the teeth has led to. The numbers give about 7 mm. wear for three years, but it seems to be more rapid during the second and third, and less in the fourth year; and the same remark, that the wear seems to be most in the early period, applies evidently to the others as well.

The measurements of the upper milk incisors are recorded also; and show, if scanty, that these teeth follow closely the history of the lower ones.

Permanent Incisors.—The number of specimens at my command do not admit of any further statement in regard to the temporary teeth, and no attempt is made here to give the result in graphic form. But with the permanent teeth a much more elaborate series of measurements have been made. A word only is necessary as to the shape and changes produced during wear to make these measurements more intelligible. It has been said that the adult incisors emerge in succession at about two and a half, three and a half, and four and a half years respectively, and the oppo-

site teeth meet and begin to wear about six months later —that is to say, about the end of the third, the fourth, and the fifth years. The incisors have a curved conical shape. Looked at from the front, they appear wide at the top, and gradually taper towards the end of the root. There is no constricted neck to mark off root and crown, and these terms when used are meant only to indicate the end of the tooth referred to. Looked at from the side, the curve is distinct, and the tooth is narrow at the top, and gets slightly broader as we follow the curve downwards. The wear then will have the effect of flattening the curve, producing the well-known thrust-out like appearance of the teeth in the aged condition; it will make the teeth narrower from side to side, and broader in the antero-posterior direction. Pictures illustrating these changes and further details may be seen in books dealing with the anatomy of the domesticated animals, and in such special works as Huidekoper's 'Age of the Domestic Animals.'

The enamel layer is in the form of a hollow sac in the young condition, open below, and at the other or free end of the tooth it is folded inwards to form a cup projecting into the pulp cavity, and ending in a blind point (fig. 12). The enamel layer is covered externally with the crusta petrosa, and is lined internally with dentine. The latter becomes thicker and thicker in successive years, until about seven or eight years the pulp cavity becomes reduced to a tube of about 2 mm. in the first incisor, and the same condition is reached by the second incisor about a year later. This central canal becomes still further reduced, and is practically obliterated ultimately, and the opening reduced to a mere aperture, which may be terminal or externo-lateral. This is the fate, first of all, of the first incisors, and of the two others in succession, and of those of the lower jaw before those of the upper. As far as the first two pairs are concerned this seems to occur at from fifteen to eighteen years.

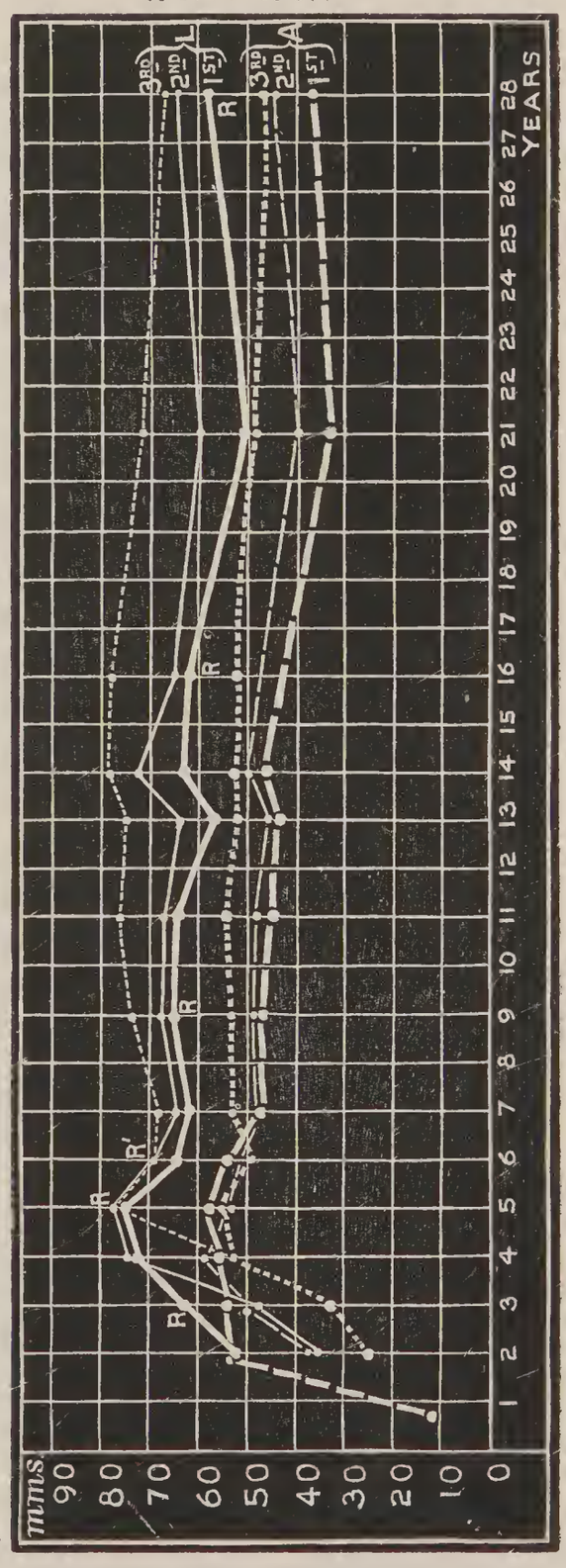
The following numbers are the measurements in millimetres of the adult lower incisors from the radiographs, together with the approximate measurements of the alveoli. And they are given in a more convenient form on p. 397.

Age.	1st. Length.	1st. Alveolus.	2nd. Length.	2nd. Alveolus.	3rd. Length.	3rd. Alveolus.
8 to 9 months	—	11	—	—	—	—
2 years . .	51	52	35	36	—	24
3 „ . .	61	55	49	50	—	32
3 „ . .	62	—	48	—	—	26
4 „ . .	71	57	72	59	52	53
5 „ . .	75	58	77	56	77	55
6 „ . .	65	52	69	51	69	50
7 „ (Pony)	62	48	63	48	69	52
9 „ . .	65	49	67	49	73	53
11 „ . .	64	45	66	49	75	55
13 „ . .	58	44	64	45	74	53
14 „ . .	64	47	72	51	79	53
16 „ . .	61	47	65	47	78	51
21 „ . .	50	33	60	40	71	49
28 „ . .	59	37	66	45	67	45

The upper three lines give the length of the teeth, and the lower three lines the length of the alveolus, and of these the broad line represents the first, the thin line the second, and the dotted line the third incisor.

These show that the lower incisors attain to about the same size about the fifth year. About the fourth year the second incisor reaches a greater length than the first, and remains so thereafter. The third incisor, after attaining the size of the second at five years, increases in size and remains as the longest of the three. The first evidently grows rapidly up to five years, and then is gradually reduced. The second grows still more rapidly up to five years, and does not seem to be reduced so rapidly. The third comes up even more rapidly, and is not so much reduced as either of the others. It seems, indeed, to have increased its growth. The numbers and the lines show, moreover, that the wear is not so much as one would expect during, say, the twenty-three years after they attain the fifth year size. If we take the average between the twenty-one and twenty-eight,—for the latter it must be admitted is larger than the normal,—the reduction during this period is, say, 21 mm., or at the rate of about 1 mm. a year for the first incisor. It is only some 14 mm. for the second, or at the rate of about $\frac{1}{2}$ mm. The third has lost apparently about 10 mm.

A comparison of the radiographs shows excellently that as the teeth wear down and get narrower the crowns tend to keep close together, while at the same time the roots become more separated. It is plain that this accommodation can only take place along with a readjustment of the



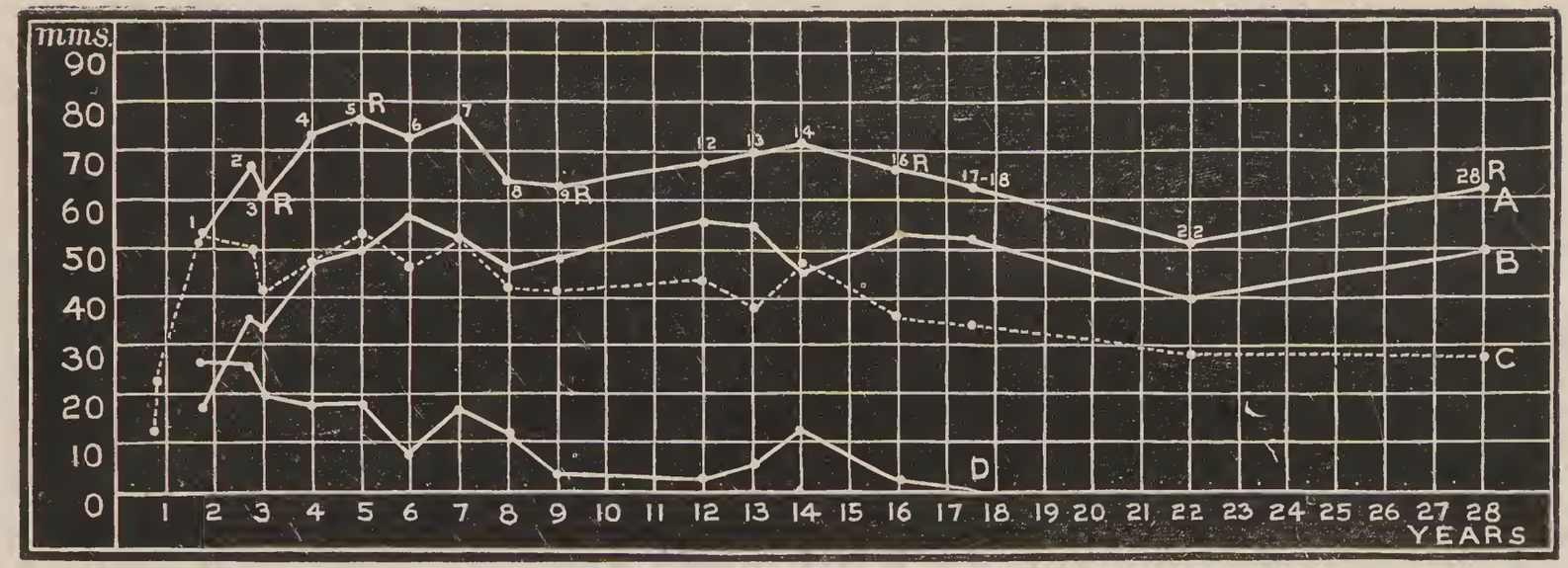
Lower Incisors as measured from Radiographs.

alveolar cavity. Though some pairs of first incisors in the young condition are somewhat divergent at the roots, the majority appear to be close together with very little of a bony wall between them. In all the old specimens they will be found to be separated by a fairly large bony interval, and the other incisors become similarly separated at the roots in the old condition. The alveolus, in short, seems to be made and unmade as the pressure of the teeth may determine. The cavity is enlarged in front and behind the growing tooth, and seems even in the older specimens to be still adjustable to the changing conditions of the teeth. That is the general change taking place. There is, of course, a great deal of variation, and it only serves to emphasise the opinion that the series of radiographs forces upon one that this change in the alveolar cavity, like the wearing down of the teeth, cannot be ascribed to an orderly hereditary sequence, but is more akin to a pathological change. It is the result and expression of the mechanical forces to which the teeth and the alveoli have been subjected in life. That it is variable is because the animal is variable in the use of the part, if for nothing else. There is, in fact, such a factor to be considered as the fate of position in explaining the changes occurring during growth.

This, however, can be further considered after taking into account the actual measurements, and the alveolar "curves" may then be treated as well. It was after expressing the radiographs in lines and noting that they suggest that the so-called "permanent pulp" does not seem to possess much permanence, at any rate in the case of the first and second incisors, that sections were made for the purpose of actual measurement. When these happen to be the same as those radiographed, they are distinguished in the following tables by the letter R. The teeth in this case were subjected to a variety of measurements, the purpose of which may now be pointed out. For comparison with the radiographs the anterior curve of the tooth was measured, and also the extreme length in a straight line. These are combined in the upper line of the "curves" on p. 399. It so happens that the numbers obtained in this combination are very nearly the same as those got in the radiographs, as may be seen by comparing those marked R with the corresponding measurements or line representing the radiographs.

As it was desirable in this part of the work to indicate, if possible, the actual growing capability of the pulp, some

First Lower Incisor.



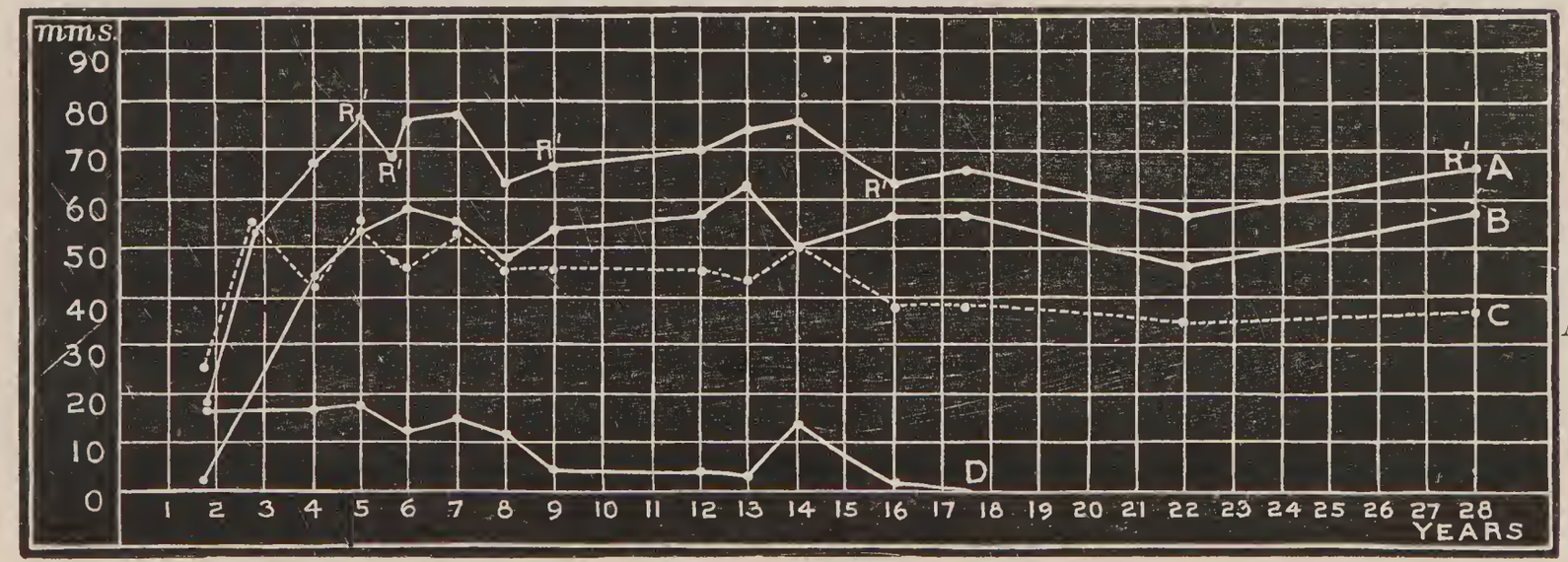
Combined curve and length.

Cup to end of root.

Alveolus.

Length of cup.

Second Lower Incisor.



Combined curve and length.

Cup to end of root.

Alveolus.

Length of cup.

central point had to be chosen from which the measurements could be made. There is no distinction as was said into root and crown, but the bottom of the enamel fold, forming the cup already mentioned, furnishes a point which is fairly constant. By measuring the length of the cup an attempt has been made to indicate the wear, and by measuring from the bottom of the cup to the lower or root end of the tooth, figures are obtained which represent how much is actually added to the tooth from behind, or, in other words, the growing capability of the pulp. The columns, "depth at bottom of cup," and "width at bottom of cup," the latter often approximate, give measurements which should be fairly constant during successive years. The alveolus was measured, and for the purpose of indicating the size of the mouth measured the width of the whole jaw across the corner teeth is given. The average diameter of the pulp cavity, about midway between the bottom of the cup and the end of the root, is given in the last column.

(*To be continued.*)

CASTRATION OF THE DOMESTICATED ANIMALS.*

By C. E. Parker, M.R.C.V.S.

Castration is usually performed with the idea of increasing the value and usefulness of the lower animals. It may also be an operation of necessity when performed for therapeutic reasons, as in diseased conditions of the testicles and ovaries and their surroundings. The operation is followed by certain effects on the animal, the most evident being the alteration in the character and disposition.

In the ruminant class the tendency to accumulate fat is produced. In the cow, not only is the power of accumulating fat produced, but the secretion of milk is increased in quantity and quality and in duration of flow, the spayed cow continuing to produce milk from eighteen to twenty-four months.

In cases of nymphomania in the lower animals the value of spaying speaks for itself.

The operation should be performed when the animal is young,—on colts, I think, when a year old is the best

* A paper read before the Royal Veterinary College Medical Association.

time. For calves, from six months old to a year is most suitable; sheep, or rather lambs, between three and six months; pigs, from six weeks to three months.

For the female, in the case of the cow, the best time is after she has had her second or third calf. If the operation were performed earlier to any extent, it would tend to diminish the number of stock.

As to the time of the year, I think early spring is most suitable, for the air is more pure, and the flies will not trouble the animal so much.

The subject should be in good health and condition. If of a weakly disposition, or from other causes unsuitable to be operated upon, he should be left till in a suitable condition; or if he must be castrated at the time, the risk of the case not doing well should be brought to the client's notice.

Regarding preparation, I think it is advisable for colts to be got in and fasted overnight. This should always be done when the animal is to be cast, and it is quite as well if intending to operate in the standing position. If the animal has to be cast the bowels will not be so full, and therefore will be less liable to rupture on the animal going down. If the operation is to be performed standing, it certainly makes the animal more tractable.

The hands and dress of the operator should be free from any septic matter.

I think it will not be out of place nor a waste of time to run briefly over the anatomy of the parts. In the horse the testicle has its long axis horizontal. Each testicle is contained in a *cul-de-sac* of the tunica vaginalis, which is a pouch of the peritoneum carried through the inguinal canal. There are two layers of the tunica vaginalis,—a visceral covering the testicle and cord, and a parietal lining the scrotum, the two being made continuous by a frænum. There is usually a small quantity of serous fluid in the tunica vaginalis.

With regard to the other enveloping membranes, taking them from within outwards, next to the vaginal tunic is the fibrous, derived from the fascia of the transverse muscle of the abdomen; it forms a complete covering to the serous tunic. Next is the cremaster muscle, derived from the internal oblique muscle. It is attached above to the inner or peritoneal surface of the ilio-lumbar aponeurosis, passes down through the inguinal canal, and terminates in numerous small tendons, which are attached to the external surface of the fibrous tunic. It only forms

a very incomplete covering. By the contraction of this muscle the testicle is drawn upwards.

The next covering, the dartos, is derived from the elastic tunic of the abdomen. External to this is the scrotum proper, which envelops the two testicles at the same time, all the other coverings forming separate pouches for each testicle. The scrotum proper is merely the skin covering the region. It is closely adherent to the dartos, and externally shows a seam in the middle line which corresponds to the median septum between the two testicles.

Each testicle is suspended by its upper border by the spermatic cord, which is formed by the aggregation of the spermatic vessels and the vas deferens. Against the upper border and a little to the outside of each testicle is placed the epididymis, a body elongated from before to behind. Its extremities are expanded and adhere closely to the testicle. The anterior is the larger, and is known as the globus major, the posterior as the globus minor; it is curved upwards and continued as the vas deferens, a canal about the size of a goose-quill, which lies parallel with, but behind and to the inner side of the spermatic vessels, as far as the internal inguinal ring.

The testicle receives its blood-supply from the spermatic artery, derived from the posterior aorta. Before this artery reaches the testicle it forms numerous flexuosities, which are united in an elongated mass at the anterior and superior part of the testicle. It is then insinuated beneath the tunica albuginea, and passes along the upper border of the testicle, backwads round the posterior, inferior, and anterior borders successively.

In the bull the main difference lies in the testicle being placed perpendicularly and being more dependent.

The Operation in the Standing Position.—As a first consideration a suitable place in which to operate is an important item. Some persons have advised taking the subject to an open place such as a field. In my opinion the smaller the place is the better, comparatively speaking. The most suitable place is an ordinary six-foot stall or a small loose box. The animal will not hurt himself nor the operator in this if he is handled properly. The place should be clean and littered with fresh straw to prevent slipping. It is only reasonable that if an animal is in an open field and and finds people cutting into a tender part, he will endeavour to retire.

Haltering of the Colt.—The colt has next to be haltered, and this will, of course, apply to the standing operation or

to that in the recumbent position. I will not go into details, merely saying the smaller the place is the better, and that the halter should always be taken by the operator, and should be of suitable size for the subject. The halters usually found on a farm are much too big for an average yearling, and are often in the last stages of decay. It is far best to halter a colt yourself, and the more quietly it is done the better for both the man and the colt. Should the colt be restless, it will often be a great help to the man putting on the halter if some one holds the tail. The halter should be scotched, to prevent it pressing on the nose.

If the animal is fairly quiet, the parts should next be examined for any abnormality, as scrotal hernia or disease of the testicle. In some cases the testicles are so small that it is advisable not to attempt the operation standing. In examining the parts the operator stands in line with the shoulder on the near side, and resting the left hand on the colt's withers, quietly feels the parts to be operated on with the right. Supposing them to be normal, the operation may be proceeded with. The animal must first be twitched; in some cases it may be necessary to do this before examining the parts.

In putting the twitch on a colt plenty of time should be taken, and it should be done very gently. It is wise to stand at the side and not in front of the colt. The twitch should only be screwed up tight enough to distract the animal's attention from the operation. If the animal shows any vice it may be tightened as required. Some colts will not endure a twitch, but will stand quietly as soon as it is removed. The cord must be strong, as if it once breaks on a colt's nose it is very difficult to get it on again.

The parts are next washed with an antiseptic, and dried with a clean cloth (10 per cent. Jeyes' fluid is useful). The advantages of this cleaning are twofold; it is an antiseptic precaution, and it removes the natural oily secretion of the scrotum, thus giving the operator a better hold. There are various ways of operating in the standing position. I shall first touch on that with the Blake or Huish-Blake castrators. The instruments required are a castrator, and knife of a special pattern. I need scarcely say that antiseptic precautions should be taken with instruments used in this or any other mode of castration. The operation is as follows:

The testicle is taken in the left hand and pulled well down into the scrotum, and kept there by a secure grip

between the thumb and fingers. This is an important and, with a small testicle, difficult matter without practice. A firm hold having been obtained and the scrotum being tense, with the knife in the right hand and held close to the point, the operator with one sharp stroke severs the coverings right to the substance of the testicle, which is thus released. A little fluid usually escapes at this point, and a gurgling sound may be heard, due to air getting into the peritoneal cavity, but it need cause no alarm. It is necessary to use a proper knife that can be held near the point, otherwise the left wrist is liable to be cut. The testicle being liberated the artery should be felt for, so that the position of the testicle may be known, as it is not always that the organ escapes in its normal position. The finger is next placed over the epididymis dividing the cellular tissue. The fibrous non-vascular portion of the cord is then divided with the knife, the testicle falling into a perpendicular position. The castrator is now taken, and with the serrated part up and the cutting below, the cord is crushed with steady pressure, and the testicle removed. Mr. Parker is using an instrument now that does not cut the testicle clean off, the cutting blade being blunted. In this case the organ requires a little pulling off, and he considers this helps to prevent bleeding by stretching the end of the spermatic artery. The other testicle is removed in the same manner, after which the parts are douched with the antiseptic, and all blood removed from the surrounding parts. The twitch and halter are removed and the animal given something to eat. Before leaving for good, it is advisable to examine the colt; if there is any serious hæmorrhage the cord should be drawn down and placed in the instrument again. It is a good plan to move the animal round the box or stall once or twice before leaving him, when usually some clotted blood will fall from the scrotum. The colt should remain quiet for an hour or so after the operation.

The next and perhaps the commonest method of operating in the standing position is that with clams. The instruments required are a knife, as in the previous operation, a pair of serrated scissors, and two pairs of wooden clams with ferrules or string; some operators use a pair of forceps for closing the clams. The operation is very similar to that with the castrator. Instead of removing the testicle after exposing it and dividing the fibrous portion of the cord, a pair of clams are placed on the cord and the testicle removed with the serrated scissors. The

other testicle is removed in the same way. The clams are left on usually for twenty-four hours, when they may be carefully removed and the cord returned to the scrotum, care being taken that no adhesions are left between the cord and the edges of the wound. The tail should be tied up after operating, as the clams are liable to be torn off if the tail catches them, and serious hæmorrhage might result.

The next method is that with the écraseur. The instruments required are a knife and a chain écraseur. The testicle is exposed as before, but the fibrous portion is not divided with the knife. The testicle may now be removed with écraseur, or the second testicle exposed, and the two removed together. It is a disputed question as to whether the écraseur should be screwed up slowly or as fast as possible. It seems to be the general idea in America that it should be done quickly, and Mr. Blakeway of Stourbridge is of the same opinion. I have never seen it used in the standing operation, but I should think the quicker it was done the better.

Then there is the method of ligature. The only instruments required will be a knife and some suitable material for a ligature, strong silk or twine being the best. The testicle is exposed, and the posterior portion of the cord divided. The ligature is then secured round the vascular portion of the cord, after which the testicle is excised. This method does not seem to be in great favour, probably on account of the ligature acting as a foreign body in the wound and causing complications.

When operating by this method, the ends of the ligature should be left long enough to protrude from the wound in the scrotum, which is thus kept from closing, and the slough escapes together with the ligature. Simple incision is practised in some countries, but is a barbarous practice.

All the above methods of operating are suitable for horses and cattle.

(*To be continued.*)

Clinical Cases.

HYDROPS AMNII.

By John McDonald, M.R.C.V.S., Aberdeen.

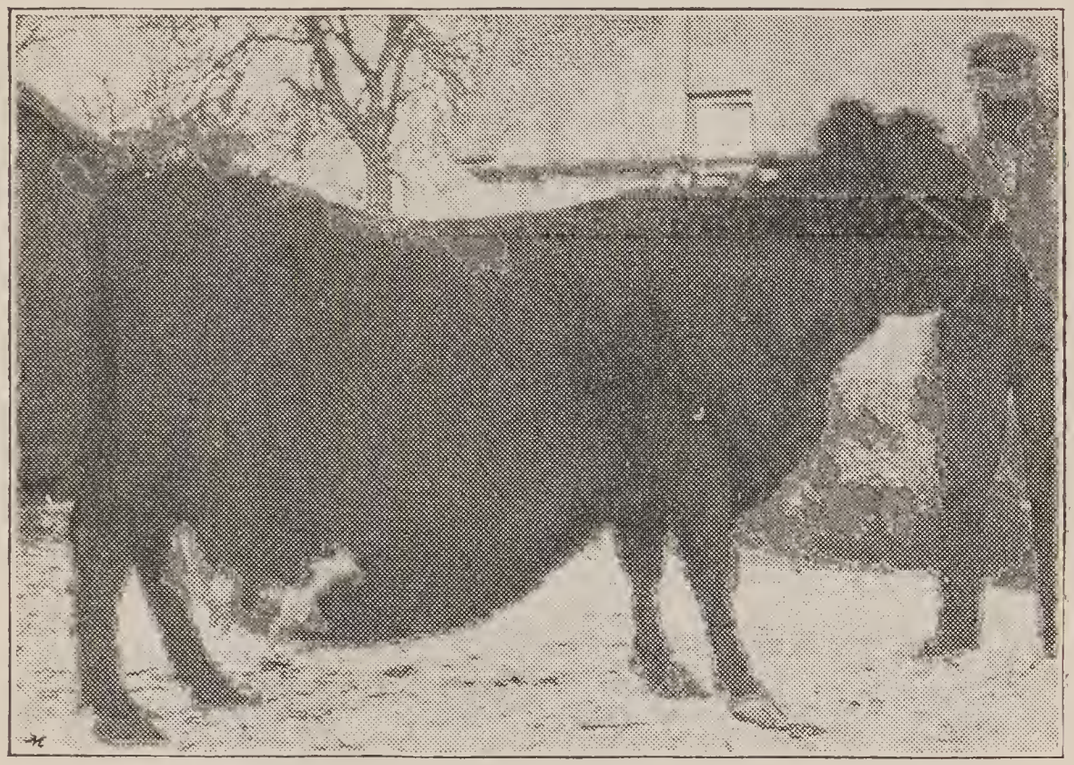
Subject.—An aged black Aberdeen-Angus cow.

History.—Had been bought to feed, but ultimately turned out pregnant, and it was resolved to let her calve. Six months from the date of purchase we were called in, as she was not doing well. Symptoms presented were loss of appetite, general debility, irregularity of the bowels, and abdomen very much distended, so much so that the owner was of the opinion that she was with twin calves. This I could not confirm, as I could not feel a fœtus, try as I might, neither externally nor *per rectum*. The uterus could be felt as a large fluctuating tumour. I diagnosed it as a case of dropsy. The owner would not consent to surgical interference, so I had to adopt palliative measures. The animal improved as far as the general symptoms were concerned; but the abdomen continued to distend until the muscles gave way, and the udder descending almost touched the ground. This condition is well shown from the enclosed snap-shot which I had taken about a fortnight previous to calving. Towards the end she almost lay continually, and could only rise with difficulty.

On the 3rd of February I was called to assist her in calving. This would have been about three months from the first time I saw her. I found her propped on her abdomen with both hind legs, one on each side, extended backward, with the plantar surface of the feet turned upward. On exploration the os uteri was fully dilated, but no fluid had escaped, as I found the membranes intact. She had been lying in this position for about eight hours, occasionally straining, and at times chewing her cud. I decided to rupture the membranes, which I succeeded in doing with difficulty. There was a tremendous discharge of chocolate-coloured fluid. On again introducing my hand I was astonished that I could detect no fœtus. As far as my arm could reach was a large cavity filled with fluid, and it was only after having the cow suspended by ropes underneath the abdomen that I could feel the hock of a fœtus. There being plenty of room, I had little difficulty in lifting both hind legs into the pelvis and securing them. The cow was delivered of a live fœtus, which un-

fortunately only lived a few minutes. It was a large calf, but thin in condition and very rough in the coat. As the cow continued to strain violently, I removed the placenta, which was of enormous size, weighing over two stones. At several parts it was two and a half inches thick, composed of large cells filled with a straw-coloured fluid.

The cow was helped to her feet, and stood for about twenty minutes. While in this position the abdomen was



resting on the ground, and the kidney could be felt distinctly hanging from the roof of the abdominal cavity.

The cow received stimulants and plenty of fluids, but she had great difficulty in swallowing solids of any kind. This I consider due to stretching of the œsophagus by the weight of the rumen. The udder was halfway along the abdomen, and very much spread out. It was impossible to milk her except in the recumbent position.

An attempt to support the abdomen by broad bandages was had recourse to, both before and after parturition, but proved of little or no use, as when sufficient pressure was applied she sank to the floor, and refused to arise as long as the bandages were left on.

She was destroyed as useless. On *post-mortem* the organs were very pale, the uterus was contracted as in a normal case, and the only thing to be detected was shrinking and wasting of the abdominal muscles and excessive stretching of the abdominal tunic.

EXTRACTION OF A FOAL WITH DEFORMED HEAD AND NECK.

By Archibald Hodder, Royal Veterinary College, Edinburgh.

Fœtal dystokia in mares, arising from contraction of the muscles and ligaments of the neck with deformity of the bones of the skull, would appear, from inquiries, to be a by no means uncommon condition in this district. I may mention that I witnessed a case identical with the one under description only last season which followed the general rule, and proved fatal to both mare and foal. It is exceedingly rare for both the mare and foal to survive.

The present case, which occurred in the practice of A. E. Dalby, Esq., M.R.C.V.S., Docking, Norfolk, is interesting in that not only was the foal extracted alive, but the mare is now completely recovered, and I may add that with trouble and expense I have little doubt but that the foal could have been brought up, although the result, the preservation of a monstrosity, would hardly justify the attempt.

The patient, an eighteen years old heavy cart mare, having attempted delivery without success, professional aid was solicited. On examining the animal, which was recumbent, and much prostrated by the repeated efforts to expel the fœtus, a small quantity of mucus was noticed suspended from the vulva. The genital passage was well lubricated, and the animal got on to her feet, when, on exploration, the os could not be distinctly made out, and as the membranes appeared to have become twisted and much thickened, an incision was made into the uterus, when a posterior presentation was discovered. On further exploration the fœtus was found to be in much the same diagnostic position as a cow suffering from parturient apoplexy, with the head and neck directed backwards and bent to the right side. A line was attached to each hind extremity when the mare fell. Steady traction was then employed by three assistants. Some little difficulty was experienced owing to the hind legs becoming crossed on each other. The traction was performed in a rotary direction around the long axis of the body, which had the effect of dislodging the head of the fœtus from the ribs into which it was embedded.

On extraction the lower part of the skull (including the

nasal bones, the superior and inferior maxillæ, with the premaxilla) was found to be much distorted and bent, the bones and muscles of the neck being deformed and contracted. The sketch I have made will show the condition.

The foal was alive, but did not gain its feet. A febrifuge drench was administered to the mare, and I saw the patient the next day, when she was progressing most favorably, and has since quite recovered. The foal was destroyed, although it was alive the following day.

It is to be remarked that the pelvis and genital passage of the mare were both well developed. To these facts, and to the gentle rotary traction, much of the successful issue was perhaps attributable.

THE VETERINARIAN, JULY 1, 1897.

THE PUBLIC HEALTH (SCOTLAND) BILL.

The committee stage of this important Bill has been passed, and the Bill as amended will shortly come before the House of Commons. The objectionable omissions in sections 40 and 57 have been rectified, and the veterinarian has been given that status we claimed as his alone; and wherever his services may be requisitioned, and indeed are required, he has been put on an equal with the Medical Officer of Health and that nondescript official the Sanitary Officer. That such is the result so far is gratifying; but it is as well to keep in mind that even now our position is not safe, because the House may not give effect to the recommendations and amendments of the committee. We hear of movements in various quarters that have for their end the overthrow of various alterations made in committee, but it is to be hoped that the majority of the House will support the committee's conclusions. It is essential now as ever that we should be wide awake to our interests, and that we should not lose sight of the fact that what we have gained may be readily lost; and it behoves us all to keep a jealous eye upon our position, which has all too tardily been recognised. No one must relax his efforts to make the amendments of the committee part and parcel of the future Act, and no one must be satisfied with his exertions until the Bill has escaped all danger, and is upon the statute-book.

To many who have striven to bring the anomalous position assigned to both Medical Officer of Health and Sanitary Inspector in the original Bill home to the various members of the committee the thanks of the profession as a whole are due, though it would be invidious, as it is undesirable, to mention individual names.

It has been noted that not only have we gained all that we asked, but we have obtained more than we anticipated. The most valued amendments were those of Mr. Crombie and of the respected member for Midlothian, Sir Thomas Gibson-Carmichael, which were ably supported by the Hon. Mr. Egerton, Captain Jessel, and Mr. Renshaw. Our readers know quite well that Sir Thomas is a practical agriculturist, and that he breeds some of the best stock in the country, and that he was one of the first

to test the value of tuberculin as a diagnostic reagent. By its means he has practically rid his herd of tuberculosis, and is able to guarantee that, so far as the tuberculin test goes, cattle sold for breeding purposes are free from that disease. The amendment adopted by the committee, and which is causing a commotion in certain quarters, is included in the following:—"Provided that the veterinary inspectors appointed by local authorities under the Contagious Diseases (Animals) Acts, 1878 and 1886, or the veterinary surgeons appointed by local authorities under the first sub-section of this section (40) of this Act, shall be bound, when called upon, on receipt of a fee, to be fixed by the local authority, to examine and pass or condemn, in whole or in part, animals alive or dead which are sent to any licensed slaughterhouse in the district of such local authority, provided that no animal shall be sent dead for such examination unless it be sent as a whole carcass with lungs, heart, and the lining membranes of the chest and body cavities attached, and the other organs all complete, and so disposed that the inspector may be able to satisfy himself that they are the organs of the animal so sent; and the certificate of such inspector passing such animal or portion of an animal shall exempt the owner thereof from the penalties of fine and imprisonment, in respect of any complaint regarding the condition of such an animal or portion of an animal, at and for a reasonable time after the granting of such a certificate." We venture to think that the clause quoted will be as satisfactory to agriculturists and feeders of stock as it must be to the general public; for if there is any doubt about a carcass it is only rational to suppose that one who has studied animals of its (the carcass's) own species, in health and disease, is the proper person to say what is the disease from which it suffered during life. No veterinary surgeon desires to arrogate to himself the work of the medical officer, and we should have thought that no medical officer would wish to give an opinion on a question concerning which he makes no pretence of knowledge; rather we should have thought he would welcome a skilled opinion for his own guidance, lest inadvertently, like some of his brethren, he had assigned to the cow diseases to which she is not heir.

THE ANNUAL MEETING.

The annual meeting of 1897 has come and gone, and for all the animation displayed it might have passed muster as a Quakers' meeting. It was anticipated that things would take a lively turn, more especially as the ballot paper carried a serious error, and one which practically disfranchised several members. That only a few suffered, and that the election was not materially affected, is a lame and impotent argument, and one which we hope will be contested. It is deplorable that one of the few printed documents issued to the profession during the year should carry so flagrant a mistake, and whoever is responsible should be strongly reprimanded. Nor, as we mentioned in our last issue, should it again be possible for examination papers to be sent to students carrying blunders which five minutes' attention would have obviated. It seems almost as if we were being taught how not to do it, how to make our examinations despised of all students, teachers, and the general public. It is to be hoped that at the next meeting of Council some member will have the courage to speak the mind of all right-thinking persons on the matter, and stir up from their somnolence those who are responsible.

VETERINARY ADVANCE IN THE LEGISLATIVE WORLD.

By Jno. A. W. Dollar, M.R.C.V.S.

In commenting on the advances made by the veterinary profession during the past few years nothing, perhaps, strikes the casual observer more forcibly than the increasing importance of the public position which members of our calling now occupy. The Veterinary Surgeons Act of 1881, and the Supplementary Charters of 1883 and 1892, were measures of the greatest value, but referred solely to our own affairs; the recognition of our position and claims, suggested by the demand for our assistance in the stamping out of contagious diseases, and by the concession made to our views in the partial reconstruction of the veterinary department of the Board of Agriculture, is a public recognition, and is emphatically confirmed in the new amendments to the Public Health (Scotland) Bill. There for the

first time we find ourselves ranged on a plane of equality with the medical officer, and fulfilling, in our own department, similar duties to his.

The position has not been won without strenuous effort, but none will grudge the labour in face of the immense benefit which must accrue both directly and indirectly to the profession. Direct benefit may be anticipated from the throwing open of many new appointments; but it is doubtful whether the indirect, the *moral* benefit will not in reality prove the greater. Every one who has been engaged in forwarding our interests in this matter must recognise how different at the present time is the reception accorded him by Members of the House to that he might have anticipated a few years ago. Personally, I may say the work done has been a continual source of pleasant surprise, and of the many applications made to Members of Parliament, none has been met save in the kindest and most courteous manner. Of those whom I might single out for especial thanks are Mr. Crombie, M.P., who proposed the chief amendment; the Honorable Mr. Egerton, M.P., who most energetically supported the amendments in the Committee on Law; Captain Jessel, M.P., a good sportsman and true friend of the veterinary profession; as well as Mr. Renshaw, M.P., Sir T. D. Gibson-Carmichael, M.P., and a number of others. Our own Member, Sir F. Fitzwygram, M.P., has used his best influence, though not being on the Law Committee he has been somewhat handicapped.

Doubtless many other members of the profession have remarked the same respect for and attention to their appeals, and have appreciated the growing authority of the calling which they represent. Such a change is the result of many factors, but of none more potent than our improved system of education, which, though of such recent growth, already begins to make felt its influence.

A suggestion has been advanced that the profession requires its own Member in the House. Could a sufficiently wealthy, leisured, and energetic representative be found, unquestionably the idea is a good one; but failing so desirable a consummation, I cannot but reflect with pleasure on the extremely cordial assistance rendered us by Members of all parties at a time of great difficulty, and in face of an established legal tradition backed by the hostility of a large section of the medical profession.

A word of warning. It must not be forgotten that the Public Health (Scotland) Bill has yet to pass through the

Report stage, when it is still susceptible of extensive changes. It would, therefore, be foolish to relax our vigilance for one moment, or to cease pressure on our Parliamentary representatives. The medical profession greatly resents the privileges conferred on sanitary inspectors, and there is still some soreness over the gains registered by ourselves. Sir William Priestley and Sir Walter Foster have given notice of proposals to strike out several amendments so far as they concern sanitary inspectors; and although I have not yet heard of any such motion regarding our own clauses, there is still time for their introduction. Up to the present reports from the House, on which I think one may rely, seem to negative such intention, but it must not be forgotten that our success is only partial, and that we might even yet have cause to regret abating our efforts should the unusual course of revising the Law Committee's recommendations be resorted to.

The Month's Progress.

The Treatment of Laminitis and Descent of the Os Pedis.—At a meeting of the West of Scotland Veterinary Medical Association, held on June 9th, a short paper was read by one of the members in support of his view that the os pedis did not descend in so-called cases of descent of the os pedis, but the condition was due to a movement upwards of the wall induced by the exudate thrown out as the result of the laminitis. The author did not make many converts, and it will perhaps be interesting to learn how the condition of descent has been treated recently on the Continent. Hermann Schneider in his writings suggested a shoe made of two plates for the treatment of laminitis, and more especially where descent of the pedal bone was feared. In laminitis, the author remarks, the pedal bone is displaced, and its tip abuts against the antero-inferior part of the sole, which is thus pressed upon and eventually perforated. To prevent this tilting of the os pedis some means must be devised, so that if displacement has occurred it may be remedied, and the bone made to resume its original position. Joly, who has revived the treatment suggested by Schneider, adopted a plan the reverse of that followed by Kingst in the treatment of laminitis. Kingst endeavoured to bring the wall into contact again

with the os pedis, whilst Joly, on the contrary, forces the bone to its true position against the wall. Joly treats his cases of laminitis as follows: first, refrigerants are used for several days, and then the wall is prepared at its anterior and inferior part to receive an ordinary three-quarter shoe. Welded to this shoe, and passing backwards from the arch of the shoe, is a simple straight piece of iron. Two or three holes are punched into the lateral wings of the shoe as far back as possible, the toe therefore merely rests upon the shoe rim. The piece of iron welded on and springing from the concavity of the toe has for its object to bring pressure to bear upon the frog, and more especially on its point a pressure acting from below upwards and from behind forwards upon the solar surface of the os pedis when the foot is on the ground. If the frog is small or atrophied, tow and tar are packed in under the bar, which also may be slightly incurved along its length.

The pressure thus produced speedily causes resorption of the inflammatory products, displacement of the pedal bone is prevented, and if displacement has occurred the original position may be again resumed. Joly gives particulars of nine cases so treated, four of which are his own observations. The others were those of friends who followed out the lines laid down by him. In six cases the results are excellent, in the remaining cases the results obtained were insufficient or *nil*, but for which the treatment could not be blamed. No claim of originality is made for the shoe; indeed, it appears to belong to a remote antiquity, and it is suggested that in all probability it was used in the past for the very purpose it is suggested to-day. In the museum of Besançon there is such a shoe in the Gallo-Roman collection.—*Récueil de Mémoires et Observations sur l'Hygiène et la Médecine Vétérinaire Militaires* (tome xviii, 2e Série). *Récueil de Méd. Vét.*

External Luxation of the Flexor Pedis perforatus.—An uncommon accident, of which Burck records two cases, and which he cured. This observation recorded by Drouet affords the opportunity of noting the *post-mortem* appearances. A very vigorous horse, seventeen years old, was frightened whilst in his stall, reared, slipped, and fell upon his left side. The left hock swelled considerably when walking; the gait was not much altered, but trotting caused much pain and inconvenience; the true hock-joint did not flex, the limb was carried "all in a piece," and there was

marked oscillation from the left hip. After treating for a month by fomentations and blisters the swelling disappeared from the hock, except at the point, and it was quite evident that the superficial flexor tendon wound round that of the gastrocnemius as usual, but instead of passing over the summit of the os calcis as it should do, it traversed the external surface of this bone and descended along the side of the hock to eventually occupy its proper position below the joint. The outline of the tendon was like to a thick cord swollen in the middle. When the limb was fixed the tendon could easily be replaced, but luxation recurred so soon as weight was put upon the limb or the support removed. The patient was killed, and on *post-mortem* examination the subcutaneous fascia at the point of the hock was found to be loose and abundant, and of a reddish colour; the synovial bursa which facilitates the movement of the perforatus over the tuber calcis was ruptured, and so were the fibres that anchor the tendon to the calcis itself. —*Ibid.*

Tuberculosis of the Udder.—Lungwitz, with the view of noting the frequency of tuberculosis of the udder, examined this organ at the abattoir of Leipsic, in 17,202 cows and heifers slaughtered there during a period extending over twenty-one months. He found 119 cases of mammary tuberculosis, a proportion of ·69 per cent., an average much below that usually accepted. In no case did he find primary tuberculosis of the udder, the lesions always were coincident with a more or less well-marked generalised tuberculosis. In only two cases were the lungs free. It is very probable that the gland was invaded by the blood-stream, and consecutive to the formation and breaking down of centres. It would have been interesting if the recorder had given us an idea of the condition of the liver in these 119 cases.—*Archiv für Thierheilkunde.*

Botryomycosis in the Horse.—Professor Fröhner, whose writings we have frequently called attention to in these columns, points out the importance of and the surgical treatment of these mycofibromata. These tumours along with the sarcomata are the most common of the horse. (Cancer affecting the penis is by no means rare.) They grow continuously and thus become malignant, and their speedy excision is imperative. In many cases botryomycosis of the horse closely resembles actinomycosis of cattle, but it differs greatly in that the treatment by iodide of

potassium is of none or of little effect; moreover it is metastatic. Generally the disease (botryomycosis) commences at the site of an old wound, and thus it is found more particularly in certain regions, such as the spermatic cord, at places where the harness causes friction, in the region of the parotid gland, point of the elbow, on the lips, tail, between the thighs, on the pastern, in the udder, and on the mucous membranes. Fröhner relates a number of cases upon which he operated, out of some fifty that have passed through his hands within two years.

Botryomycosis of the Pituitary Membrane.—The tumour was placed at the entrance to the left nostril. It was fungoid in appearance, soft, multilobular, the size of a nut, and of a polypoid character. When cut into, nodules varying in size from the head of a pin to a pea, crowded together, perforated, and from the small orifice of the perforation a granular-looking material could be expressed, a material formed by the botryomycetes.

Botryomycosis of the Mammary Gland.—The patient, a mare, had already lost in 1895 the right half of the gland, which had been removed owing to disease. The left half was in turn attacked, and when operated upon was the size of a man's head.

Botryomycosis of the Elbow.—A tumour three times the size of a man's head, hanging down as far as the knee, and measuring 86 centimetres (2 ft. 9 in.) along its greatest circumference. The skin was very much thickened, and adherent all over the neoplasm, and thus entire extirpation was made difficult. Section showed the tumour was composed of indurated connective tissue, studded with yellowish foci, softened and tunnelled with canals. Hæmorrhage was considerable in spite of the numerous ligatures employed. The cavity resulting from the operation was well irrigated with a solution of lysol.

Botryomycosis of the Leg.—A neoplasm the size of an egg or an apple situated between the tendo Achillis and the tibia had been treated with ointments, &c., for a long time. It was cut out and found to be of a botryomycotic nature.

Botryomycosis of the Forearm.—A new growth perforated with fistulæ and some eight months old, the size of a child's head, and situated upon and around the elbow. It possessed the same characters as the above mentioned. Similarly the author mentions localised botryomycosis of the hock, scrotum, and lower jaw in front of the masseter muscle. In several cases affecting the fetlock and pastern

the new growths were of enormous size.—*Monats. f. prakt. Thierheilk.*

On the Use of Antitetanic Serum in Veterinary Practice.—Many of our readers write to us asking various questions concerning this serum, and we publish the following from the *Annales de Médecine Vétérinaire :*

"The antitetanic serum sent out from the Pasteur Institute is furnished by horses rendered immune to tetanus. It is despatched in glass capsules, containing from 10 to 12 c.c., enclosed in a wooden box. It keeps its properties for a long time if it is kept cool and in the dark. Before using the serum care must be taken to note if it is still clear—a slight deposit at the bottom of the capsule does not indicate any change.

"Injected under the skin, the antitetanic serum confers a temporary immunity against tetanus; this immunity persists, according to the dose used, for from three to six weeks, and may be maintained by successive injections.

"The preventive action of the serum is certain; it has *no* curative action in cases of acute tetanus, where the course is rapid. On the other hand, in lingering cases, such as those cases of tetanus that appear some time after the infliction of a wound, injections of the serum apparently exercise a favorable action; cases are less frequent and less intense, and cure is more rapid. It is unnecessary to point out that when tetanus is manifest cure is always uncertain, even when large doses of the serum are used.

"It is, therefore, as a preventive reagent that antitetanic serum should be used.

"Preventive injections of the serum are indicated in those localities where tetanus is common—

"1. As a sequel to certain operations which are known as likely to be followed by tetanus, such as castration, removal of scirrhous cord, docking, operations for the relief of umbilical hernia, operations upon the foot and lower parts of the limbs, &c.

"2. In cases of picked-up nail, pricks, treads, quittor, cracks, &c.

"Where recent wounds have been soiled with earth or manure, and more especially in those cases where foreign bodies covered with earth-litter or manure have entered the wound.

"The preventive treatment consists in injecting twice subcutaneously 10 c.c. of the serum. (Small animals, such as lambs, will only require 5 c.c. at each injection.)

"The first injection should always be made as soon as possible after the operation or the infliction of the wound; the second injection eight or ten days after the first.

"Injections of the serum do not dispense with the necessity of treating the wounds antiseptically until complete cure is obtained. All foreign bodies must be removed.

"If tetanus has declared itself much more of the serum must be injected, and the injections must be repeated daily. The first day 50 c.c. should be injected, on following days 20 c.c. should be injected.

"*Injections.*—The serum should be injected into the subcutaneous fascia, either in front of the chest or behind the shoulder. At the place of injection the skin should be shaved, and then very carefully washed with a 3 per cent. solution of carbolic acid, or of cresyl or lysol. Before using the syringe it should be sterilised, as well as the needle, in water that has been boiling for a quarter of an hour. The bottles containing the serum should only be opened at the moment of injection; every bottle that has been opened should be used the same day.

"The Pasteur Institute (Service du Vaccin, 35, Rue Dutot, Paris) supplies antitetanic serum at the following prices:

A bottle or capsule containing	10 c.c.	1.25 fr.	
„ „	20 c.c.	2.00 fr.	25 fr. = £1

On the Use of Antistreptococcus Serum in the Treatment of Anasarca of the Horse (*Purpura Hæmorrhagica*).—For many years the treatment of purpura hæmorrhagica has been more or less empirical, owing doubtless to the lack of knowledge as to the ætiology of the disease. It has been considered as due to bad hygienic surroundings, to debility, and, consequently, as a sequel of various diseases; and lastly, as due to some organism that, affecting the capillary walls, or changing the composition of the blood-plasma, has permitted the escape of the latter into the cell spaces and the cavities of the body. This affection has received a variety of names, such as Typhus of the Horse, Petechial Disease, Anasarca, the Spotted Disease, Putrid Fever. It has been likened to scarlatina and to purpura hæmorrhagica of man—at least in this country, and hence the name with which we are familiar. This variety of nomenclature is, as we have said above, due to want of precise knowledge as to the pathology, to the disease arising under various conditions, and to different manifestations as regards the visible characteristics. Moreover, the treatment sug-

gested and adopted has been as varied as the opinions upon the pathology. Turpentine, chlorate of potash, iron salts, and hæmostatics generally have been the sheet-anchors of many for years past; more recently, owing to the recommendation of Dieckerhoff, Lugol's solution has been tried with fairly satisfactory results. (Lugol's solution is composed of iodide 1 part, iodine of potassium 5 parts, water 100 parts, and of this from 10 to 30 grammes are injected daily into the trachea.) Now, owing to the belief that purpura is due to a streptococcus, an antistreptococcus serum is recommended, particulars of the use of which we give below from the *Annales de Médecine Vétérinaire*.

The antistreptococcus serum is furnished by horses that have been rendered immune to the *Streptococcus pyogenes*, which causes in man a number of different affections, such as erysipelas and puerperal fever. Purpura hæmorrhagica of the horse is itself due to a variety of this same streptococcus, and hence the use of the serum is indicated in the treatment of this disease. The serum is sent out in bottles containing 10 c.c., the bottles being enclosed in a wooden box. It keeps its properties for a long time, provided that the serum is kept cool (as in a cellar), and in the wooden box from light. The serum should not have undergone any change during storage. A slight precipitate, however, does not necessarily indicate any change.

How to use it.—The best results following the use of the serum are to be expected when it is used as soon as the symptoms of the disease are shown. The course of the disease may be cut short in from twenty-four to forty-eight hours if the serum is used at the onset. Thirty c.c., or the contents of three bottles, are injected at one and the same time. A similar injection should be repeated daily until the patient is convalescent. Resolution is apparent (1) by the disappearance of the swellings and the return of the normal contour of parts; (2) by the disappearance of the petechiæ, and by the fall of temperature, but this last has not the same value as the former, since the fever may be due to other causes than the purpura.

If the disease is well marked, especially if it is serious (owing to the malady of which the purpura may be merely a result), sixteen bottles of the serum will be required, three bottles being used daily for four days, two bottles on the fifth and sixth days. In very severe cases and in very big horses 40 c.c. may be injected daily. The patients must be looked well after when the serum treatment has

ceased, for if the serum treatment is stopped too soon the disease may return, and then treatment will have to begin afresh.

Patients should get during the day, in small quantities and often, oats, hay, and mashes. Stimulants and tonics are not indispensable; their action, however, cannot be other than beneficial. Stimulants applied to the swellings will do harm.

Manipulation.—The serum is injected into the subcutaneous connective tissue in front of the chest, of the shoulder, or over the ribs. The quantity injected at any one point is not more than 10 c.c., and no two points should be nearer than 25 centimetres (say ten inches). At the place of injection the skin should be previously shaved, then carefully washed with a solution of carbolic acid 3 per cent., or of cresyl or of lysol. The syringe and needle should be boiled in water for a quarter of an hour.

The bottles containing the serum should be opened only when required, and the contents used up the same day. Injections of this antistreptococcus serum cause very often in the horse about the eighth hour a more or less extensive œdema, hot and painful, but this œdema is resorbed in from twenty-four to thirty-six hours, and no abscess ever forms.

The serum may be obtained from the Pasteur Institute at the rate of 1.25 fr. (say 13*d.*) for a bottle containing 10 c.c.

On the Treatment of Open Joint by the Pus from Strangles Abscesses.—In the *Recueil de Médecine Vétérinaire* for May 30th is a remarkable paper by M. Friez, of Petit-Croix, of which we give a summary made by M. Cagny for the Société Centrale de Médecine Vétérinaire. M. Friez's method of treatment of open joint is to inoculate the pus from a strangles abscess in the neighbourhood of the wound. He was prompted to try this treatment by observing the rapid cure of open joints that had accidentally been inoculated with strangles pus. In his first case, one of right metatarso-phalangeal arthritis due to a tread, the patient was three years old, and suffering from an attack of strangles. Strangles abscesses appeared in the limb, and concurrent with their appearance the synovial discharge disappeared. The second case was in a two-year-old horse, the right posterior fetlock of which had been opened by an American fork. The patient had commencing strangles. Strangles abscesses appearing in the

limb hastened the cicatrisation of the joint wound. These two cases convinced M. Friez that strangles had something to do with the cure, and he then proceeded to test his conclusions.

On July 9th, 1893, he was called to visit an eight-year-old mare, that during a run-away had received several wounds on the outside of the left hock, one opening large enough and deep enough to admit of the finger feeling the bones of the articulation. There was an escape of synovia. A counter-opening was made, parts were washed with clean water, and without any other treatment, forty-eight hours after the accident, Friez introduced into the wound two small plugs of cotton wool, one saturated with the discharges from a horse suffering from strangles, the other saturated with the pus from a submaxillary abscess of the same animal. No dressings were applied; eight days later, there was a marked change for the better, the wound was covered with pink granulations, the synovial clots were replaced by creamy pus like that of strangles.

Several strangles abscesses formed in the limb, and these were opened and washed out with antiseptic lotions, but in a fortnight the open joint was closed.

In another case the right hock had been opened by a kick during the night of April 12th, 1894. Parts were washed with cold water, and on the 17th plugs of cotton wool saturated with strangles discharge were inserted. On April 25th the patient could put weight upon the limb. Several strangles abscesses formed and were opened, but on May 15th the open joint was completely closed.

In a fifth case the strangles virus was inoculated into a twelve-year-old horse that had been in the slings for more than five weeks, with an open stifle-joint. The case was considered as incurable, and because of this the experiment was permitted. A cure was the result.

In February, 1895, a twelve-year-old horse had his right stifle-joint opened by a kick. A blister was put on, and this was followed by iodoform plugs. On the 5th April Friez was called in consultation, the patient being in slings and apparently incurable. Inoculation of the strangles pus was made, and seventeen days later the joint was closed.

In every case an enlarged joint persisted for several months, but there was no lameness.

Commenting on these facts, M. Cagny says that whatever explanation may be offered, the formation of abscesses in the neighbourhood of the open joints will act as com-

pressors, immobilise the limb, and favour cure. Moreover M. Friez, when he made his inoculations, did so into already contaminated wounds—wounds that were suppurating. It is well known that some organisms are inimical to the development of others, and the question is, are the organisms producing strangles antagonistic to those organisms that give rise to pus ?

Tuberculosis of the Skin in a Cow.—A cow that had been subjected to injections of tuberculin in May, 1896, and that had shown the characteristic reaction (her temperature had gone up 2·6° C.) was last February slaughtered, but on *post-mortem* examination no lesions were found in the lungs, liver, spleen, nor in the lymphatic glands. The disease was confined to the skin and subcutaneous connective tissues, a few tubercles alone jutting above the general surface of the skin. The area of distribution of the tubercles was somewhat limited, but they were present on the outside of the left limbs, upon the sides and back. They were especially abundant on the left fore-limb, where Lacaze (who records the case) counted thirty from the metacarpus to the lower extremity of the shoulder; some of the tubercles were the size of a small nut, many had become caseous and calcified.

The observation is interesting as showing the skin of cattle is not exempt, and further that it may be diseased, and still the internal organs be free.—*Le Progrès Vétérinaire.*

Reviews.

A Text-book of Veterinary Ophthalmology. By Geo. G. Van Mater, M.D., D.V.S., Professor of Ophthalmology at the American Veterinary College, &c. Letterpress, including index, 157 pp., one chromo-lithograph Plate and seventy-one Engravings. New York: Wm. R. Jenkins, Publisher.

We took up this work hoping to find it really a work on Veterinary Ophthalmology, and put it down disappointed. For the most part it is veterinary in name only,—that is, it is a work which has been written by a practising oculist with the end in view of supplying a text-book for veterinary students. So much indeed the author tells us in his pre-

face. Let us see how far our own opinion is verified by the contents of the work, at least as much as we can quote here.

The first eighteen pages are devoted to optics, but on page 15 we find that "the most acute vision is at the *macula lutea*, or yellow spot." Doubtless this is true for those animals that possess a *macula lutea*, but our author should have informed his readers that none of their patients of the future possess a *macula lutea*, such a structure not being found in animals lower than the Quadrumana. On page 21 the ethmoid bone is said to form portion of the orbital cavity, the optic foramen to pass the ophthalmic artery, the superior orbital fissure the fourth nerve, the inferior orbital fissure the malar and infra-orbital nerves and the facial branch of the ophthalmic vein, the supra-orbital notch (the notch only exists in the foal) to contain the supra-orbital nerves and the artery as they pass to the forehead. This is undiluted human anatomy, and not that of the domestic animals; and this is a fault of the author, that his anatomy is human though his subject is said to be veterinary. Similarly the puncta lachrymalia are described as situated on papillæ, which they are certainly not, but are slits in the palpebral conjunctiva, and occupy no elevation at all. Moreover we think that it would have been well for the author to explain some of the terms employed, because the work is written for the student, and one knows well that technical words and phrases require definition. Under Exophthalmos we have, between two semicolons, "will have chemosis of the conjunctiva," as if chemosis were a word in everyday use, or one that would be understood intuitively. Besides, it is not elegant, though doubtless playful and to the point, to write, "Don't be fooled," when there is a possibility of error in diagnosis. On page 26 the lower eyelid is said to be supplied by a prolongation of the inferior rectus muscle. The membrana nictatans (*sic*) is called the *winking eyelid*, but the term winking as qualifying the eyelid depends considerably as to whether the winking is physiological or emotional; it may under different circumstances be either upper or lower: the more or less stolid horses of this country generally use the upper lid,—never, so far as we are aware, the membrana nictitans. On page 29 the eyeball is said to be drawn into the orbital cavity by the recti muscles, but in the horse the retractor oculi is the muscle employed. As an example of style we give the following:

"Acute Blepharitis.—Abscess of the lids. Is an acute

phlegmonous inflammation of the lids: usual cause is of a traumatic nature. May accompany strangles or follow it: adenitis simple. Will have great swelling with the cardinal symptoms: apt to have conjunctivitis accompany this. May have fluctuation early. This might go on to gangrene. If early enough, cold applications to abort. If later, and suspect formation of pus, *hot* applications, and get the matter [no joke! we suppose] over with."

Page 53. "A caustic applied at the outset may abort." This is the entire sentence.

In cases of gonorrhœal conjunctivitis in equines the groom must be looked to for an explanation. We should like to know if gonorrhœal conjunctivitis has ever been seen in the horse. Doubtless the groom would deny any knowledge of such condition.

"If the case has been brought you while young (*i. e.* the case, not the patient), evert the lid and paint the palpebral conjunctiva with a strength suitable to the severity of the presenting symptoms, of nitrate of silver solution, even using the stick form in aggravated cases, *neutralising it with a saturated solution of Sod. Chloride before the lid returns to its normal position.*" This is taken from page 57, and is the treatment for diphtheritic conjunctivitis. The sentence quoted admits of several renderings, although the author indicates that the case must be young, and not necessarily the patient (or the practitioner). The application of the stick, and with force according to the emergencies of the case, savours of something other than that indicated by the author.

In speaking of wounds and injuries to the cornea the author says, "If the corneal wound be central use atropine and *quick.*" The italics are the author's own.

For irido-choroiditis moon-blindness is used as a synonym, though in this country amaurosis is termed moon-blindness. On the same and the following page (99 and 100) occurs the following, which we commend to the notice of the essayist of the National Veterinary Association. Writing of irido-choroiditis, or *reccurrent* (*sic*) ophthalmia, the author says, "Heredity is one of the most potent causes we know. This is very positively demonstrated when both parents have suffered. In support of this, we know if a mare had borne a number of foals, all sound, and then suffered an attack of periodic ophthalmia, the subsequently born would also suffer. The study of atavism presents many interesting facts in these matters. *And yet if the foals of diseased parents be transferred to high, dry ground, they will nearly*

all escape." The italics are ours, and all we have to observe is that, although it has been supposed that transmission of the disease has occurred, the remedy is given in the words italicised. The foals have suffered not from any transmission of acquired characters, but because they have been subjected to the same harmful influences as their parents. The illustrations, with the exception of two, are from works on human ophthalmology; at least one method of operation that is purely veterinary is not mentioned, that of amputation of the eyeball through the temporal fossa; and, as we have pointed out, the anatomy given is not such as will assist a veterinary surgeon, nor is the matter put always in an intelligible manner. Yet there is much that is useful in the work, and if changes were made along the lines we have indicated it might be made of some little service to the student.

We do not know the price of the work. It is well printed and strongly bound.—A. E. M.

Topographische Anatomie des Pferdes (*Topographical Anatomy of the Horse*), by Drs. Ellenberger and Baum. Part III.—The Trunk. 334 pp., 58 woodcuts, and 8 lithographic plates. Price 18 marks. Berlin, 1897, Paul Parey, Hedemannstrasse 10.

The last portion of the 'Topographical Anatomy of the Horse' fitly crowns a work unique alike in conception and execution. Four years have elapsed since the first part (the Limbs) was issued, a period occupied by steady effort to surmount difficulties which at first sight might daunt the most enthusiastic. The methods pursued by Drs. Ellenberger and Baum in their attempts to accurately ascertain the relationships of the various organs have been twofold: firstly, by a long series of most careful dissections they have revealed the positions of the less mobile portions of the horse's frame; and secondly, by freezing a large number of carcases whole, making sections in various directions, and employing a competent artist to at once record the results, they have produced a number of pictures which must prove of incalculable value both to the student and the surgeon. Not content even with this, they have checked the results so obtained by a process as ingenious as it is simple, viz. that of piercing freshly slaughtered carcases in every direction with long needles, and immediately proceeding to dissection, noting the manner and

direction in which the organs were pierced and the positions which they relatively occupied. It is only fair, perhaps, to English enterprise to note that many years ago Professor McFadyean froze and cut whole carcases; but the variability of the British climate, and the pressing nature of the duties the Professor was then fulfilling, appear to have prevented his taking the fullest advantage of the process, and so far as we are aware such sections were used chiefly for class instruction, though this in itself marked an advance in anatomical teaching of which we cannot speak too highly.

As they inform us in their preface, the authors resolved "to write down nothing of which they had not repeatedly assured themselves by the exercise of their own senses." The quotations from other authors, though always acknowledged, are remarkably few; and the work, so far as may be ascertained by a brief study, is most thorough and original. A very useful feature are the tables of weight, &c., of various organs, the figures in which are based on a systematic series of observations extending over six years. The illustrations are of two kinds: wood blocks (some in two colours) and lithographic plates. The latter are among the finest of their kind which we have ever seen. The authors claim that their work constitutes "the first exhaustive text-book of equine topographical anatomy published in or out of Germany." Believing their claim to be justified, we can only congratulate the veterinary profession on having produced two investigators so eminently fitted for the task they have undertaken, and commend to the German-reading portion of our calling a study of the work.

Outlines of Veterinary Anatomy. By O. Charnock Bradley, M.R.C.V.S., Professor in New Veterinary College, Edinburgh. About 590 pp., 47 diagrams. Price 10*s.* 6*d.* London: Messrs. Baillière, Tindall, and Cox.

Mr. Bradley, in an admirably clear and modest preface, declares his object to be "to present the most important facts of veterinary anatomy in as condensed a form as possible consistent with lucidity." The work is intended for students preparing for examination, and should be used in conjunction with the larger standard text-books. So far as we can ascertain by the necessarily brief study we have been able to give it, the book more than fulfils the claims made by its author.

Everything required by a student is to be found here in the smallest possible compass. Each sub-section is completed by a few pages in which are compared the peculiarities differentiating the special structures considered in the horse and other domesticated animals. In most cases synonyms are given, so that, whatever the system of nomenclature he adopts, the book should prove equally useful to the student. Important facts are emphasised by special types, rendering reference easy. To elucidate complex points a number of diagrams are also supplied. The only drawback we note is the division of the book into three distinct portions, with separate numeration of pages and diagrams (in consequence, apparently, of the original method of publication) ; but this is so small a fault, and of so technical a nature, as scarcely to deserve mention. The publishers have made every effort, by the selection of suitable type and by attention to printing and binding, to render the book acceptable to its intended public.

JNO. A. W. D.

Current Topics.

THE PREVALENCE OF BOVINE TUBERCULOSIS, AND ITS POSSIBLE EXTINCTION.

EVERY now and then public attention is called to the great and probably increasing prevalence of tuberculosis among cattle, or, more correctly, among cows ; for, if we had no more precise information, the disproportion between the 3 per cent. or less of carcases in the meat markets, in which the most careful inspection detects the evidence of disease, and the 30 to 60 per cent. or more of cows on dairy farms, in which the tuberculin test proves it to be present would be enough to show that tuberculosis is practically restricted to the latter. For the bullocks roaming in the open field or mountain pasture enjoy comparative exemption, and the tuberculous meat in the market is almost exclusively the flesh of cows fattened for the butcher, either on account of their age and lessening yield of milk, or from their showing symptoms of the disease in its earlier though easily recognised stages. There can be no doubt that, though their flesh may at this period be consumed without danger, its quality is deteriorated and its money value proportionately reduced, and that, though their milk

may not be already infective, it may at any moment become so, should the glands of the udder be implicated. Unlike human beings, horses, and dogs, cows are notoriously stolid and undemonstrative even when suffering from grave disease, as tuberculosis or cancer; but it is strange that, on grounds both of danger to the public health and of pecuniary loss to the owners, farmers should be so apathetic as to the existence of a disease the aggregate loss from which must be greater than that caused by occasional outbreaks of such affections as pleuro-pneumonia. Tuberculosis, however, being, like other specific diseases, the microbes of which cannot perpetuate themselves for long out of the living body, contracted, whether directly or indirectly, solely by contact or association with other individuals already suffering from it, could be extinguished by rigid segregation and isolation of the healthy from the diseased. Such a procedure cannot indeed be seriously thought of with regard to human beings, and the futility of quarantine and sanitary cordons to arrest the spread of the highly infectious cattle plague has been as conspicuous here as in the case of cholera; but the conditions under which cows are kept on dairy farms, while calculated to favour, if not to render inevitable, the spread of any infectious disease, are also such as to present every facility for the elimination of tuberculosis, requiring as it does for its communication close and prolonged association. The observations of Koch on rodents, of Bang on cattle, and of Boltz on children, not to mention other names, furnish abundant evidence as to the extreme rarity of direct transmission from parent to offspring. Congenital tuberculosis is in the highest degree exceptional, the progeny of tuberculous parents being almost always born free from the disease, and remaining so if removed to healthy surroundings immediately after birth; while in the characteristic reaction produced by the injection of tuberculin there is a well-nigh unerring means of diagnosing the existence of the disease, if not in its very earliest beginnings, at any rate at a stage when it is presumably not as yet communicable to others. Bang, whose procedure has been carried out successfully on numerous estates in Denmark, has shown that it is possible to eliminate tuberculosis from a herd in the course of two or three years, without having recourse to the drastic measures employed in the case of cattle plague and pleuro-pneumonia, and with little or no pecuniary loss at the time, but with a great gain in the end. His method consists in testing the entire stock by one or two injections, and the

removal of all those that react to a separate establishment at as great a distance from the others as possible. All new purchases are tested in like manner, and the process of inoculation of the apparently healthy animals, with the separation of those that react, is repeated every six months until they cease to give any result. Those that give evidence of being tuberculous are fattened for the butcher, but if already in calf or but very slightly diseased they may be allowed to calve once, or perhaps twice, provided their milk is not used for any purpose except for feeding pigs, and that after being boiled, their calves being transferred at birth to the healthy establishment and tested when about six months old. If public opinion in this country be not ripe for compulsory legislation, it is much to be desired that the county councils should at any rate encourage the practice by diffusing information on the subject, and by providing free of cost a supply of tuberculin and the service of expert veterinary surgeons to perform the inoculations and direct the subsequent arrangements. —*Lancet.*

GLASGOW VETERINARY COLLEGE.

The examination of the Royal College of Veterinary Surgeons took place on Thursday, 20th, Friday, 21st, and Tuesday, 25th May.

The following students passed the A examination:—John Allan, Glasgow; T. Price, Glasgow; W. G. Forbes, Duntocher; F. B. Beck, Milford, Donegal.

The following students passed the B examination:—William Watson, Poyntzpass, co. Armagh, second honours; James Montgomerie, Rothesay; John Aitken, Kingstown, Dublin; D. M'Hattie, Glasgow; E. Soutar, Forfar; Frank Timeny, Partick.

The following students passed the C examination (four years' course):—R. H. Johnston, Dundalk; J. W. Conchie, Wolverhampton; James I. Smith, Kilbirnie, Ayrshire; D. Weir, Milngavie; J. C. Erskine, Bridge of Weir; R. G. Jones, Rhuddland, Flintshire; Harry Oliver, Birmingham.

The following students passed the first or theoretical portion of the C examination (three years' course):—George Waugh, Glasgow; George Broom, Glasgow; Frank Russell, Ballynahinch, co. Down; James Rankin, Hamilton; J. P. Heath, Southernhey, Exeter.

The following students passed the D examination (four years' course), and obtained the diplomas of the Royal College of

Veterinary Surgeons:—J. Raphael M'Call, Blairtummock; J. F. M'Eachran, Campbeltown, second honours.

The following students passed the second or practical portion of the C examination (three years' course), and received the diplomas of the Royal College of Veterinary Surgeons:—J. Rankin, Hamilton; James Laird, Coatbridge; George Broom, Glasgow; George Waugh, Glasgow; F. Russell, Ballynahinch, co. Down; David M'Geoch, Paisley.

Medals granted by the Highland and Agricultural Society, the late Professor Allen Thomson, of London, and Principal M'Call, and certificates of merit, were awarded in the different branches of study as follows:—Medicine, surgery, and obstetrics (horse), written examination: Silver medal, J. R. M'Call; first-class certificate, R. G. Anderson and J. F. M'Eachran; second-class certificate, J. Rankin, J. P. Heath, and J. Marshall.—Medicine and surgery and obstetrics (cattle), written examination: Silver medal, J. R. M'Call; first-class certificate, J. F. M'Eachran and R. G. Anderson; second-class certificate, James Rankine, John Marshall, and George Waugh.—Materia medica and therapeutics: Silver medal, J. I. Smith; first-class certificate, H. Oliver, R. G. Jones, and James T. Shannon; second-class certificate, John Stevenson, James C. Erskine, and J. W. Conchie.—Pathology and bacteriology: Silver medal, R. G. Jones; first-class certificate, J. T. Shannon, H. Oliver, and J. I. Smith; second-class certificate, J. C. Erskine, James Rankine, and John Stevenson.—Veterinary hygiene and dietetics: Silver medal, H. Oliver; first-class certificate, J. T. Shannon and C. W. Mackay; second-class certificate, J. I. Smith and J. W. Conchie.—Parasitology: Silver medal, John Marshall; first-class certificate, John Marshall, J. R. M'Call, J. F. M'Eachran and R. G. Anderson.—Zoology: Silver medal, John Allan; first-class certificate, W. G. Forbes and Harold Rogers; second-class certificate, F. B. Beck, James M'Cutcheon, and John Danskin.—Junior Anatomy: Silver medal, J. Danskin; first-class certificate, W. G. Forbes; second-class certificate, J. Allan and F. B. Beck.—Senior Anatomy: Silver medal, D. M'Hattie; first-class certificate, J. Montgomery; second-class certificate, W. Watson and J. J. Aitken.—Physiology: Silver medal, W. Watson; first-class certificate, J. Montgomery; second-class certificate, D. M'Hattie and J. J. Aitken.—Chemistry: Silver medal, J. Allan; first-class certificate, J. Allan, F. B. Beck, and J. M'Cutcheon; second-class certificate, W. G. Forbes and J. A. M'Intyre.—Botany: Silver medal, F. B. Beck; first-class certificate, J. A. M'Intyre and John Allan; second-class certificate, W. G. Forbes and J. M'Cutcheon.—Practical examination of horses as to age, soundness, operations, &c.: Gold medal (by Principal M'Call), J. F. M'Eachran.—Practical examination of cattle and sheep as to age, soundness, operations, &c.: Gold medal (by Principal M'Call), J. R. M'Call.

Glasgow Veterinary College Medical Association.

At a meeting of the members of this Society, convened within the Theatre of the College, Principal M'Call in the chair, the following gentlemen were awarded the Honorary and Fellowship Diplomas of the Society:—Messrs. James Deans Rankin, Hamilton; James Laird, Coatbridge; George Broom, Glasgow; George Waugh, Glasgow; F. Russell, Ballynahinch, co. Down; David M'Geoch, Paisley; J. R. M'Call, Easterhouse; J. F. M'Eachran, Campbeltown.

NODULAR DISEASE OF THE INTESTINES OF SHEEP.

On this subject the *American Sheep Breeder* has the following:—"The disease, which appears as small knots on the intestines, is due to a small worm called *Œsophagostoma columbianum*. It is a small round worm, which lays its eggs in the intestines. These on hatching enter the intestines and form little nodules or tumours, in which the young worms (a sixth of an inch long) may be seen, by the help of a microscope, curled up, awaiting maturity to make their way out of the tumours, when they gather in the large intestines until full grown, at which time they are about one inch in length. They cause sheep to lose flesh, their appetite fails or becomes depraved, the sheep eating any coarse stuff that may be in their way; finally, in the worst cases, convulsions occur, and the animal staggers and ultimately falls and lies struggling until it dies. Few, however, die, and then only when the worms are so numerous as to greatly interfere with the nutrition of the sheep. Lambs suffer most, and generally late in the summer. They become thin and weak, the eyes and lips pale, and the wool is harsh and at times loosens from the skin. A change of pasture is most desirable, as it is apt to become infested by the worms escaping in the sheep's droppings. The eggs in the mature worms thus ejected are taken in by the lambs in feeding. This worm is widely distributed all over the United States and Canada, and is known to infest deer, and probably other wild animals; hence the danger to flocks depastured on wild ground and on cultivated meadows where deer, and probably rabbits, carry the parasites."

Army Veterinary Department.

The Annual Dinner of the Army Veterinary Department was held at the Hôtel Métropole on the 1st ult., when the following officers were present:

Veterinary Colonel J. D. Lambert, C.B., Director-General; Veterinary Lieutenant-Colonels J. H. B. Hallen, C.I.E., W. B. Walters, C.B., J. Kettle, J. C. Berne, J. Reilly; Veterinary Majors G. Durrant, R. Rowe, I. Matthews, J. K. Grainger, J. J. Phillips, S. Duff-Gillespie, T. Flintoff, J. D. Edwards, W. A. Crow, F. Smith, D. C. Pallin, J. A. Nunn, C.I.E., D.S.O.; Veterinary Captains A. A. Jones, R. Pringle, R. Moore, J. T. Dibbin, G. A. Fenton, F. J. Short, J. Cooper, C. E. Nuthall, E. R. C. Butler, J. A. Meredith, A. J. Haslam, D. J. Barry, G. R. Griffith, D.S.O., Principal Veterinary Officer, Egyptian Army; Veterinary Lieutenants F. B. Draze, J. H. Jackson, J. Moore, F. C. Stratton, H. T. Sawyer, A. Smith, H. M. Lenox-Conyngham, W. A. Pallin, E. E. Martin, P. J. Harris; and Veterinary Captain W. Scott, Principal Veterinary Officer, New South Wales.

Extract from 'London Gazette' of June 1st, 1897.

"Honorable Artillery Company of London: F. S. Stanley, Gentleman, to be Veterinary Lieutenant. Dated June 2nd, 1897."

Correspondence.

UNPROFESSIONAL CONDUCT.

To the Editor of the 'Veterinarian.'

Sir,—Is it not time that our Council stated definitely what is conduct disgraceful in a professional respect, and what is not?

In my opinion keeping a shoeing forge does more to lower the profession in the eyes of the public than advertising does; but many of the Council keep shoeing forges,

and I conclude fee grooms and coachmen to take horses there to be shod, as stated in the enclosed cutting, which I hope you will publish.

Members of the Council appear to be able to advertise, indirectly at least, as much as they like. Is not advertising oneself, by regularly giving evidence for the R.S.P.C.A. in supposed cruelty cases, against other veterinary surgeons, conduct disgraceful in a professional respect?

One cannot help remarking the names of the veterinary surgeons the R.S.P.C.A. had to give evidence for them in the Halifax docking case.

In conclusion, the veterinary surgeons who do *not* keep shoeing forges are in the majority, and if they would put their heads together they could soon weed those out of the Council who do.—Yours, &c.,

ANTI-HUMBUG.

[The correctness of the *Field's* strictures has yet to be proved; but even assuming them to be correct, the fault lies not in carrying on a farrier's business, but in carrying it on *dishonestly*. We must assume that those members of the profession who habitually give evidence for the R.S.P.C.A. act *from*, and not, as our correspondent seems to suggest, *for* conviction.—ED. *Veterinarian*.]

GENTLEMEN'S SERVANTS AND TRADESMEN—ALLEGED SYSTEMATIC BLACKMAIL.

"A Veterinary Surgeon," in the course of a letter to the *Field*, makes some striking allegations against gentlemen's servants. "The gentleman's servant," he says, "has but a single lesson to receive in what he calls 'discount,' and ever afterwards bleeds all with whom he comes in contact, or else withdraws his patronage. Please mark the fact that it is his, and not his master's patronage; the latter only writes the cheques, all else is in the hands of the coachman or stud groom. Few readers of the *Field* will attribute any share of the late farriers' strike, for instance, to the coachmen; but I could easily prove to your entire satisfaction that a sum of 1*s*. on each set of shoes is the minimum which any West End coachman will

accept, in addition to 10 per cent. on the account when paid. The more respectable farriers and veterinary surgeons decline to go further than this; but the majority of men who carry on shoeing forges are compelled to book shoes that are never supplied, and divide the plunder with the coachman. Many horses keep on their shoes too long, and thereby induce corns, while the owner is charged for a new set every three weeks, and removes once a fortnight. There are master farriers who will give one or two sovereigns for a coachman's promise to have his horses shod at the said farrier's forge next season. Some of the largest businesses have been built up on this system, and the account is 'arranged' between the coachman and the foreman, or master of the forge. The farriers work hard and earn really good wages, but, knowing how easily the horse owners are robbed, they desire a greater share in the plunder, and see no reason why yet another shilling should not be imposed, and this time for the benefit of the men who actually do the work, while the veterinary profession has been struggling for a social status to the extent of forbidding the most innocent form of advertisement. Many of its members keep shoeing forges in London, where the most flagrant dishonesty is practised. If that profession is really to be elevated there must be a total divorce from the forge. Owners will not be troubled with details; they do not occasionally check the account or notice the shoes. In vain do men like Captain Hayes write practical works for horse owners, who will accept no bother. The average gentleman roughly estimates so much a year for the stables, and, if it is not largely exceeded, is content to shut his eyes to habitual robbery until some of his rogues fall out, and in unguarded moments speak the truth."—*Birmingham Gazette*, June 7th, 1897.

Notices to Correspondents.

To ensure the publication of communications in the coming number they should arrive by the 15th of the month.

Will Contributors kindly note that, for illustrative purposes, the following are the best processes in order of merit?—Good Indian ink line-drawings, on stout white paper or cardboard, crayon drawings, photographs with good contrasts of light and shade, bold sketches in sepia. Sketches in lead pencil are very difficult to reproduce, and are not satisfactory.

The drawing should be considerably larger than the subsequent illustration is to appear; the reduction fines the lines and greatly improves the appearance.

Letters, Articles, Reports of Cases and of Veterinary Meetings, should be addressed to The Editor, 'Veterinarian,' Royal (Dick) Veterinary College, Clyde Street, Edinburgh.

The Editor does not hold himself responsible for the sentiments expressed by contributors, nor can he undertake to return rejected papers. He will be happy to advise and assist as far as possible, by letter, correspondents who may desire information regarding cases, instruments, or books.

Practitioners who are able to obtain specimens of horse embryos are reminded that they will be very acceptable, and the more so the smaller and younger they are. The exact age should be ascertained if possible; and to prevent *post-mortem* changes the specimens should be placed in a mixture of two thirds methylated spirit and one third water in a bottle, or if large, wrapped round with tow or cotton wool saturated with methylated spirit, packed and sent, carriage unpaid, to Professor Ewart, University Old Buildings, Edinburgh.

Important.—The proprietors of the *Veterinarian* invite suggestions and criticisms from their readers tending to improve the Journal. Please address all letters to the Proprietors, care of Messrs. Adlard and Son, 22½, Bartholomew Close, E.C.

TO CONTRIBUTORS.—Will Contributors of clinical Articles kindly notify on their MS. whether they desire reprints? as unless this be done type will be broken up, and reprints cannot afterwards be furnished.

JOURNALS, MAGAZINES, NEWSPAPERS, ETC., RECEIVED.

Annales de Médecine Véterinaire. Revue Vétérinaire. Recueil de Médecine Vétérinaire. Berliner Thierärztliche Wochenschrift. The Veterinary Record. The Field. The Lancet. The British Medical Journal. Live Stock Journal.

Communications, &c., have been received from Veterinary Captain R. W. Burke, F.R.C.V.S., Alex. Meek, M.Sc., Arch. Hodder, John McDonald, M.R.C.V.S., R. Rutherford, F.R.C.V.S., and others.

THE AJAX
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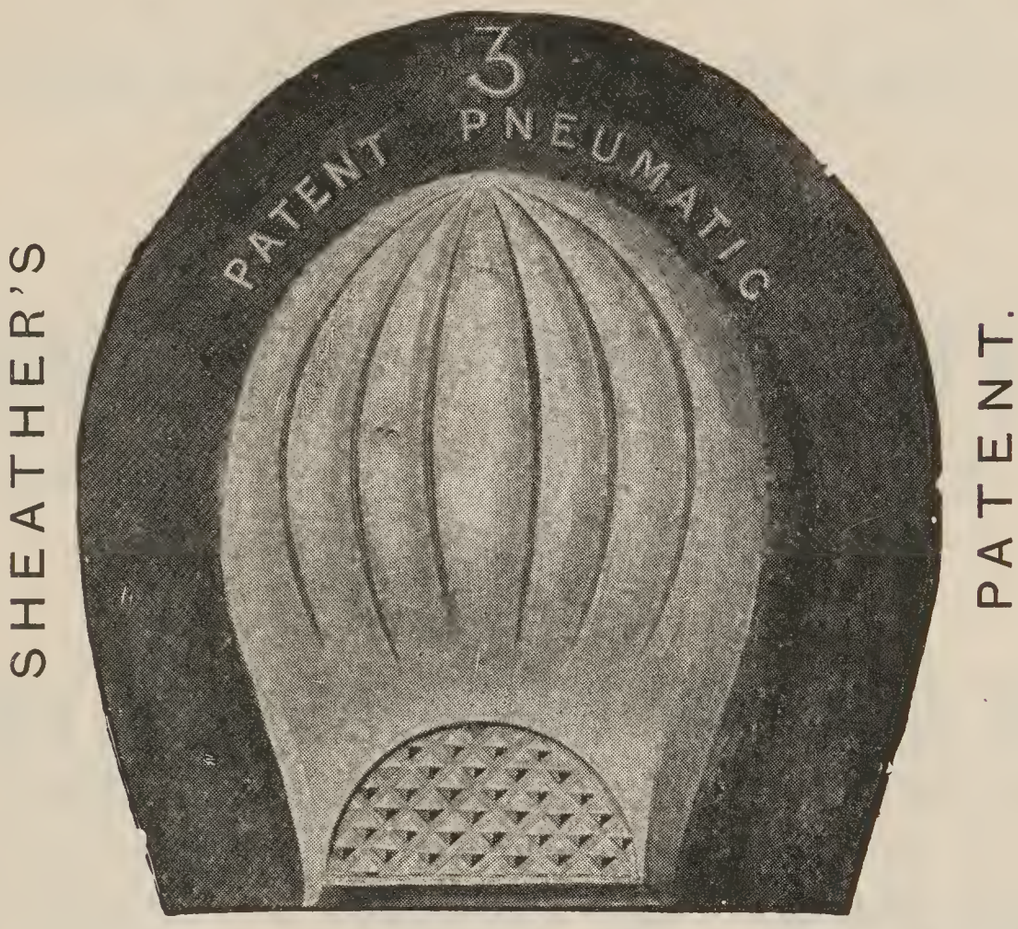

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THE VETERINARIAN

REPORTS OF SOCIETIES.

JUNE, 1897.

Royal College of Veterinary Surgeons.

The May Examinations in Scotland.

The Written Examination was held in Edinburgh and in Glasgow on the 14th, and the Orals and Practical on and between the 18th and 25th of May.

The following gentlemen passed their Final Examination and (with the exception of Messrs. H. Britain and J. Rankine who are under the required age) were admitted members of the Royal College of Veterinary Surgeons :—

Dick College.

Mr. J. Brownless *
Mr. W. Cathcart
† H. Lomas
Mr. W. Murgatroyd
Mr. J. F. Talbot
Mr. J. G. Blackwood
Mr. B. S. Cockerton
Mr. S. S. Forster
Mr. J. Grant
Mr. J. H. Norris
Mr. W. B. Stableforth
Mr. R. C. Smith
Mr. T. Wilkinson
Mr. A. Scott
Mr. J. R. Wardrope

New College.

Mr. W. H. Savage
Mr. H. Briggs
Mr. H. Brittain
Mr. J. Pollard
Mr. G. C. Barber
Mr. J. H. Lomas
Mr. R. S. Rowlands
Mr. A. A. Wilson
Mr. E. Segar
Mr. A. Munro

Glasgow College.

Mr. J. F. McEachran *
Mr. J. R. McCall
Mr. G. N. Waugh
Mr. G. Broom
Mr. F. Russell
Mr. J. Rankine
Mr. J. Laird
Mr. D. McGeoch

London College.

Mr M. Allan

The following passed their Third Examination :—

Dick College.

Mr. J. H. Brown
A. C. Burton
A. Gibson
T. Loughran
C. A. Reid
H. Ryan
Mr. W. Tart
T. H. Tranter
S. A. Winkup
E. Lander
H. Leyshon

New College.

Mr. E. Morrison
Mr. G. J. Roberts

Glasgow College.

Mr. R. H. Johnson
J. C. Erskine
D. Weir
J. W. Conchie
Mr. H. O. Oliver
J. Smith
R. G. Jones

London College.

Mr. E. T. C. Ensor
Mr. T. W. Oakley

The following passed their Second Examination :—

Dick College.

Mr. R. Garret
R. Bryden
A. E. A. Charles
† F. W. Coates
J. Cowan
W. P. Cushnahan
D. G. W. Galt
* J. J. Garside
* R. Garraway
† W. Girvan
† A. Gofton
T. Hogg
C. P. Hynes
Mr. J. F. Joyce
† H. W. Leech
* G. H. Livesey
† E. Little
* W. Ludgate
E. Mossman
J. A. McGregor
† J. McIlvenna
J. J. O'Connor
E. O'Neil
* A. Robb
J. A. Russell
† W. S. King

New College.

Mr. G. E. Hamilton
T. C. Howatson
J. Bradley
† H. Dyson
* J. Evans
* W. Gasgoyne
Mr. A. McNae *
* D. M'Donald
R. A. Plunkett
† H. Taylor
C. R. Levist
R. Butler

Glasgow College.

Mr. E. Soutter
* W. Watson
D. M'Hattie
Mr. J. Montgomery
J. Aitken
F. Timing

The following passed their First Examination :—

DICK COLLEGE.

Mr. W. J. Boyd	Mr. T. Harper
J. Cockroft	W. Hepburn
F. H. W. Cundell	J. Hobday
C. A. W. Cunningham	† R. B. Littler
R. A. Edwards	T. Nunan
J. Forrest	E. A. Ryan
G. Garden	S. E. Sampson

NEW COLLEGE.

Mr. E. Ashworth	Mr. B. Runciman †
S. C. Binks	T. Runciman
W. G. Brindred	A. Spruell
F. Crossley	J. Stafford
J. P. Dunphy	A. A. Walker
H. Martin	W. H. Bradley

GLASGOW COLLEGE.

Mr. F. P. Beck	Mr. W. G. Forbes
T. Price	J. Allan

LONDON COLLEGE.

* Kumar Shri Jettrye

Marked thus * passed with second honours.
„ „ † „ „ first honours.

R. RUTHERFORD, F.R.C.V.S.
Secretary to Board of Examiners.

THE ANNUAL MEETING.

The Annual General Meeting was held on Wednesday, the President, Mr. R. C. Trigger, being in the chair. The following gentlemen were present :—Messrs. H. J. Simpson, Wartnaby, J. F. Simpson, Malcolm, Rutherford, Ward, Harris, Jacobs, Mason, Savournin, Bower, MacCormack, Mayall, McFadyean, Penberthy, Block, Blakeway, Shipley Jr., Wragg, F. B. Lowe, J. A. W. Dollar, T. A. Dollar, Stevens, Walters, Nunn, Villar, Barrett, G. C. Lowe, Woodger, Dawson, Hobday, Wilson, Hooper, Olver, Pritchard, Lambert, W. W. Dollar, Hunting, Reekie ; Gen. Sir F. FitzWygram Bart.; and Vet.-Major Philips.

In opening the meeting the PRESIDENT said he had great pleasure in welcoming the members at the 54th Annual Meeting and in asking their criticism on the Report. Fortunately, it was not his province to do the speaking, but there were just one or two matters he would like to anticipate. He wanted first of all to call attention to the unfortunate mistake in the directions on the voting paper, but he could assure the mem-

bers that no one regretted the mistake which had occurred, entirely through inadvertence, more than the secretary. So far as could be judged, the chief consequence of the mistake was that it had entailed a large amount of labour upon the scrutineers ; it had in no way affected the results of the election. Every absolutely good vote was counted with the result that the election came out with every candidate in a certain position, and then the scrutineers took the separate votes of those who had voted again, but in no case did the amended votes alter the position of any candidate on the poll. The absolutely bad votes were separately tested and the scrutineers were kind enough to see what the result would have been had those votes been valid, and the result was again that in no cases was the position of any candidate altered. There was one other matter on the report which was not complete, and from the nature of things could not be complete at the time the report was drawn up, and that was with regard to the Scotch Bill. The Report simply stated that a committee had been appointed to wait upon the Lord Advocate. He (the President) was very pleased to inform the members that the result had been that Clause 40 had been amended as was wished, and Clause 57 confirmed in every way to their advantage. It still had to go to the House of Commons, but he believed that was a mere matter of form, and it might be taken as practically settled. In fact, he was assured by the solicitor that it would be a very unusual thing to find any alteration made now. It was a very gratifying result, and nobody, except the solicitor and himself, could know the trouble incurred and the correspondence which had taken place with reference to the matter.

On the motion of Mr. J. F. Simpson, seconded by Mr. Wartnaby, the minutes of the last annual meeting were taken as read, and confirmed.

Scrutineers' Report.

The Scrutineers declared the result of the poll to be as follows :—

Carter	814.
Cope	552.
Edgar	633.
Irving	174.
Kettle	273.
Kidd	452.
Leeney	117.
McCall	825.
Mulvey	710.
Nunn	464.
Pallin	486.
Reekie	98.
Sewell	449.
Williams, W.,	747.
Williams, W. O.,	606.
Wragg	898.

The PRESIDENT declared the following gentlemen to be elected: Messrs. Wragg, McCall, Carter, W. Williams, Mulvey, Edgar, W. O. Williams, and Cope.

ANNUAL REPORT.

The Annual Report, on the motion of Professor PENBERTHY, seconded by Mr. MASON, was taken as read; and on the motion of the PRESIDENT, seconded by Col. WALTERS, it was adopted unanimously, without any discussion.

VOTE OF THANKS TO SCRUTINEERS.

Mr. MASON moved a vote of thanks to the Scrutineers. After the painstaking and cheerful manner the Scrutineers had performed their duty it was only right that the members should heartily thank them.

Mr. J. F. SIMPSON seconded the motion. He said he had had an opportunity of observing the Scrutineers' work, and it was undoubtedly carried out admirably by them.

The resolution was carried unanimously.

VOTE OF THANKS TO PRESIDENT.

Prof. PENBERTHY said he was sure that after the most agreeable, almost unique meeting of the Royal College of Veterinary Surgeons, the members would support him in offering a hearty vote of thanks to the President and Chairman. (Applause.) He had great pleasure in proposing that the thanks of the members be given to the President for the manner in which he had conducted the business of the meeting and, so far as it had gone, the affairs of the College during the present year.

Mr. DOLLAR seconded the motion, which Vet.-Major J. J. PHILIPS, A.V.D., supported, and it was carried with acclamation.

The PRESIDENT, in replying, thanked the members heartily. He thought the kind manner in which they had adopted the report showed their perfect approval of the action of the Council during the past year. There was no doubt that very many and important changes had taken place—or at least if they had not been inaugurated, had come into operation in the past year—and he ventured to think that now the Council were becoming masters of the large amount of work, which at first was rather new and complicated to them, there was a very great future before the members of the College. The members had very kindly made allowance for many defections on the part of the Council.

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

A special meeting was held at the Grand Hotel, Manchester, on Tuesday, May 4th, at 6 p.m. Mr. Geo. Morgan in the chair. There were present over 20 members and visitors.

DOCKING.

By Wm. Woods, F.R.C.V.S.

Gentlemen,—The following circular received, I suppose, by veterinary surgeons generally throughout the country, is the only excuse I have for inflicting upon you a number of arguments with which you are no doubt perfectly familiar. But the issue is of so great importance, that though I am sorry there should arise any necessity for it, yet I do not feel that it requires an apology on my part. The circular is as follows :—

"At the Halifax Borough Police Court on Friday, the 9th of April, Mr. John Appleyard, M.R.C.V.S., was charged at the instance of the Royal Society for the Prevention of Cruelty to animals, with cruelty to a horse, the alleged cruelty being docking. The Society was represented by Counsel, and had a professor and other professional witnesses in attendance at the court ready to give evidence on behalf of the prosecution. Counsel stated to the court that the issue was simple, *i.e.*, in effect, whether or not "docking" was cruelty within the meaning of the Act. Mr. Appleyard, having only a few days' notice of the charge preferred against him, was quite unable to prepare his defence. Messrs. Walker and Briggs, on behalf of the veterinary profession, hackney breeders, and dealers generally, took upon themselves to advise him to apply for an adjournment, so that the whole question might be fairly and fully placed before the court. An adjournment was granted."

Now, gentlemen, this is a very serious matter for those veterinary surgeons who conscientiously believe docking to be a necessary operation, who feel themselves perfectly qualified to judge as to whether docking is or is not necessary, and who feel that to refuse to dock a horse may be the cause of an accident to the owner or driver, although generally speaking this last would not occur owing to the fact of the operation being so simple in character that if a veterinary surgeon refused to dock it, someone else, less qualified to do so in the most humane manner, would at once take the job in hand.

Before speaking of the operation itself, I want to draw your attention to what has been going on for the last few years. First of all, so far as we are concerned, the subject was introduced at a National Veterinary Congress about 12 years ago, and I want to refer especially to a speech of Mr. Colam the Secretary to the Society. He made two important statements. The first being

that with respect to the cruelty of docking, he expressed no opinion. He was simply guided by those who advised him professionally. The second being that veterinary surgeons seemed to think that with regard to docking, they were outside the pale of the law. Well, with regard to this second statement, there is no doubt but that veterinary surgeons do feel that they are the persons who ought to be considered authorities as to veterinary surgical operations, and they may well feel sore at an outside body endeavouring to brand with the stigma of cruelty a whole profession which has been remarkable for its self-sacrificing generosity in the interests of the country at large, and which has willingly and eagerly assisted in the curtailment of its own income, in dealing with the contagious diseases of animals. I believe they, *i.e.*, the veterinary profession, also dispute the opinion that docking is illegal, believing that the verdicts the Society has managed to obtain have been snatched in a manner not quite agreeing with the English idea of fairplay. Let me give you an example. Some years ago I happened to be called in consultation into the Lake District, and after I had finished my business, as I had an hour or two on my hands, I strolled into the court, where I heard a horse case was going on. This is what I found. Two men, apparently anything but well off, and as I gathered handy men upon a farm who occasionally turned their hand to horse-breaking, were summoned for this same offence of docking a horse. The Society was prosecuting and this is what I want you especially to note—a barrister from London was conducting the case on their behalf.

This case was the one that opened my eyes to the Society's methods. Here were two poor men in a country town against whom the Society were so eager to gain a conviction, that a barrister from 300 miles away was conducting their case. It followed in my mind that the Society's intention was later on to come before the world with a string of cut and dried convictions in proof that it was generally accepted that docking was a cruel and unnecessary operation.

Since then I have been watching and waiting for this docking question to come on in a more prominent form, and in Mr. Appleyard's case I am awaiting with some curiosity their mode of procedure. Will they fight out the question of docking on its merits? or will they simply try to show that docking is already by law cruelty, and that consequently no veterinary evidence to the contrary can alter the law. I have omitted the verdict in the case just referred to ; it was in these words, given by Mr. Wakefield a north country banker, "Docking, if properly performed is a necessary operation, and there is no evidence that it was improperly performed. The case is therefore dismissed.

I now return to the first of Mr. Colam's remarks, viz., that with respect to the cruelty of docking he expressed

no opinion but was simply guided by those who advised him professionally. Now it is one of my failings to analyse a statement of this description, and I say distinctly that the meaning of that statement is neither more nor less than that the whole profession is to act according to the caprice or fancy mainly of Professor Pritchard or whoever Mr. Colam may select to give him the advice he wants, so I need make no apology if in this paper I deal mainly with Professor Pritchard and his arguments. Now Mr. Pritchard is a man for whose opinion I may be allowed to say I entertain some respect, but it is as well to remember that it has taken him somewhere I suppose between 40 and 50 years to discover that docking is cruel and unnecessary ; because we can scarcely suppose that when professor at the Veterinary College he would allow himself to teach his students to perform an operation which he felt was both cruel and unnecessary, without making some stronger comments than from enquiry I can discover that he did make up to the year 1880.

I now come to a very short description of the operation itself. Docking consists in the removal by amputation of usually from four to eight inches of the end of a horse's tail. It is performed, generally speaking, by one of two methods. The hair of that part of the dock it is intended to leave is turned up and tied by means of a piece of string, which also acts as a tourniquet, a ring of hair is removed with the scissors at the seat of operation. and by means of one sharp movement of the knife of the docking machine the desired length is amputated. The stump is then either seared by means of a hot iron and perhaps some melted resin or a strong styptic is applied to the end of the tail by means of a pledget of tow or cotton wool, tied and kept in position by the aid of the remaining hair. I am anxious to point out that which of these two methods is the better has nothing to do with the question at issue, and should be eliminated entirely from the discussion. The only question we have to consider is : is docking a necessary operation or not, what is the best method of performing the operation ? This I trust is a sufficient description of an operation we all of us know all about.

The next question is : for what purpose is the operation performed ? The answer is : for the greater safety of the persons using those horses ; and I take my stand upon this assertion, that if by docking all the horses that England contains, one human life can be saved ; if it can be shown that by docking any number of horses human life is less in jeopardy : that we are not only justified, but that we are compelled to adopt that precaution, and to recommend its adoption generally. That is my proposition. That is the statement upon which I either stand or fall. Now then, can it be shown that the probabilities are that there will be less accidents and less liability to accident from a docked than an un-

docked horse? The shortest way to deal with this is to take the arguments against the operation and endeavour to show where they are wrong, but before I do that I wish to take you back again to the Congress of 1884, at which I need scarcely say the preponderating, nay overwhelming, opinion of veterinary surgeons was in justification of the operation. The result of that Congress was a circular issued by Mr. Colam to veterinary surgeons which I now proceed to read to you :—

ROYAL SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS.

August 6th, 1884.

DOCKING HORSES' TAILS.

Dear Sir,

On Thursday last, by invitation of the President, I attended the British National Congress at Manchester, when a discussion took place on the above subject. The remarks made, and the opinions expressed, on that occasion may be summarised as follows :—

(1) That the prosecution of a veterinary surgeon for docking a horse's tail is regarded as a matter of sincere regret by the profession.

(2) That though indiscriminate docking by dealers and others cannot be justified, instances are brought before veterinary surgeons in which it is desirable and sometimes necessary to perform such surgical operation, and that veterinary surgeons are obviously, therefore, the most competent persons to determine whether the operation shall be performed or not.

(3) That the Society ought to be guided on this subject by the opinion of the profession.

Having reported the above, I am directed to comply with the recommendation of the Congress by placing before you the inclosed questions, and by asking you to do us the great favour of answering the same, and returning the form, filled up, in the envelope sent herewith as early as possible, in order that we may have time to consider the subject at the end of the present week, after which our long vacation will commence. I need not add that, personally, I shall esteem it a great advantage to have the assistance of your candid opinions on these questions.

The Society has the best reasons for desiring to avoid mistakes, while it is bound to do its duty according to the best light it can obtain. If docking had been carried out with moderation, probably the Society would not have been driven into opposition against it, but, as you are aware, dealers and blacksmiths have conducted the practice so unsparingly that public opinion has been provoked into strong expressions of disapproval, and the Society has been compelled to interpose. Indeed, in many parts of the country the operation is being performed almost entirely by copers, farriers, gelders, and other unskilful persons, whose faults have scandalised

veterinary surgeons unjustly. The Council of the Society cannot but know that these men are often guilty of abuses which ought to be attacked (though it may not be easy for veterinary surgeons to do this), and they desire to discriminate between such abuses and legitimate operations performed by veterinary surgeons in the exercise of their profession. And, for this reason, they have cordially fallen in with the recommendation of the Veterinary Congress by submitting the enclosed questions to you, believing that your answer will be dictated by considerations of mercy and justice, as well as by a sense of responsibility arising out of your high calling.—I am, sir, yours faithfully,

JNO. COLAM, *Secretary*.

Now I ask you to consider this circular carefully, in view of what is the action of the Society now. It states that the Council of the Society have cordially fallen in with the recommendation of the Veterinary Congress.

Now the main recommendation was "That the Society ought to be guided on this subject by the opinion of the profession." I ask, Have the Council of the Society acted up to its word upon this question? because that is the jury to which I wish along with the Society that the question should be referred. That is the jury to which I am now referring it, and to the verdict of that jury I am willing to bow, and I challenge the Society to take the verdict of that jury or else to acknowledge that this circular was not an accurate statement.

I feel certain that the veterinary associations throughout the country will give every facility for Prof. Pritchard to explain his views on docking, and all that will be necessary afterwards will be a resolution at each Association that docking is unnecessary and therefore cruel, and unless his experience of other Associations differs from the Yorkshire, at a meeting of which he read a paper on this subject, not a single voice will be raised in his favour. I will now proceed to give you Prof. Pritchard's arguments against docking.

1. That it caused pain. This he said was denied by some veterinary surgeons.

2. That a horse with a long tail curved artistically would not be so likely to get over the reins as a docked horse's tail, because the long tail swayed from side to side when used for the purpose of brushing flies from the quarter and croup, whereas a short tail stuck straight out, like a poker, from the sacrum, and was consequently more liable to be flirted over the reins.

3. That a horse never forgot it if once docked.

4. That the end of the tail was very much more sentitive after docking than before.

5. That he had never had a horse get its tail over the reins when he was driving, and had never seen it but once, and upon that occasion a youth was driving.

6. That if a person could not drive a horse sufficiently

well to keep the reins from getting under the tail he ought not to drive to all.

7. That anybody who knew anything about racehorses knew perfectly well that a racehorse could not be trained if docked, because of the irritability of the animal caused by being unable to remove offending bodies from the croup, etc.

8. That the tail greatly assisted in steering dogs, as you could see if you would watch a collie and a fox terrier rush down a street and then see them turn a corner, the collie turning with ease while the terrier would get six or eight yards before being able to turn.

9. That Nature never does anything in vain, and hence that if a horse's tail would have been better short it would have been made short, and that if a horse's tail was not intended for use it would not have been placed there.

10. That cutting off the hair level with the end of the stump would answer every purpose of docking without being of pain to the animal.

11. That by docking you took away from the animal Nature's provision for the removal of offending objects from the quarters.

12. That because of these reasons docking is unnecessary and therefore cruel.

I will now try to place before you the answers to Prof. Pritchard's arguments. First of all as to the pain caused by docking. Professor Pritchard is the only one I ever heard assert that anyone said that docking was a painless operation, but I tell you this, I have pricked with a pin many undocked horses' tails and my experience has been that for three or four inches from the end of the dock there is remarkably little sensibility. I have pricked tails and many times there has not been the slightest movement of the animal, nor any desire to remove the tail from my hand. I ask you, gentlemen, to try this, and I think you will be surprised at the little sensibility there is in the tail towards the end, although if you will think of it, the fact that one is almost compelled to dock a horse with a bruised tail, if the bruise is in any way severe, in order to effect a cure, proves that the tail is only endued with a low degree of vitality. At the same time the statement that docking causes pain will, I think, be agreed to *nem. con.*

The second argument that a docked tail is more likely to get over the reins than an undocked one is more difficult to agree with, especially in face of the fact that I remember a mare that was docked three times, until she had only about six inches left, because she was such a brute at getting her tail over the reins ; and it is certainly not the opinion of many people I have asked whom I thought would be likely to know. No doubt during the remarks which may follow something will be said by the members bearing on this subject, but Professor Pritchard seems to have omitted one consideration, and that is

that the danger commences after the animal has got the rein under its tail. How to quickly remove that rein before the horse has landed you into the ditch becomes the burning question, because you can't well steer a horse with only one rein. Whether is it easier to remove a rein from under a tail a foot long or 18 inches long? If a horse is to commence kicking immediately the rein gets under the tail, then it will make very little difference as to the length of dock, but the performance, as I have seen it, is pretty much as follows: The rein is immediately gripped tightly but the animal continues to trot on, and provided he is not pulling at the bit with the rein that is under the tail, all that is wanted is to allow the rein to become quite slack, when the tail will quietly relax its hold and enable the rein to be removed, but if in the removal the rein happens to touch the tail it is immediately gripped again and the same process has to be gone through as before. Now one more grip may make all the difference between safety and an accident, and I think it stands to reason that the shorter the passage the rein has to take the less the chance of its touching the tail a second time. I saw it stated somewhere that the stump of a tail after docking is far more powerful and can hold a rein far more firmly than before. I don't see how there can be anything in this argument, but anyone who thinks he is going to pull by main strength a rein from under a tail, whether docked or undocked, will, I think, find himself grievously in error. As to the gentle swaying from side to side of a tail if it be undocked, and the jerky movement of a docked tail, I have only to say that docking puts no more muscles into a horse's tail, nor do those muscles previously in the tail contract in any different manner.

The next argument, that a horse never forgets it if once docked, appears to me a very wild statement, and is, I think, completely answered by Professor Axe's retort that "psychological research has not yet attained to that state of perfection to tell what is going on in the mind of a horse."

My answer to the next argument, viz., that the end of the tail is very much more sensitive after docking than before, is equally short. My experience is that there is remarkably little sensibility at the end of a tail either before or after docking.

I think the next two statements had better be taken together. If the Professor has never had a horse get his tail over the reins he cannot be considered much of an authority on this point, and not only so but I think we may take it for granted that for the greater part of his life, especially that part of it when he was learning to drive and before he found out that docking was unnecessary, that he drove docked horses, which may account for his immunity in that respect.

Argument No. 7, viz., "That anyone who knew anything about racehorses knew perfectly well that a race-

horse could not be trained if docked" I wish to draw particular attention to, because it struck me that if that were so, it was proof that with thin skinned horses, at all events, docking should be avoided as much as possible. I took the trouble to enquire into this rather carefully and I will give you the result of my enquiry. The first person I asked was what is known as the head lad in a well-known training stable. The head lad, I may explain, is the person who is a kind of foreman over the lads that groom and ride the horses, and is not necessarily a lad at all. In this case he was, I should judge, between 35 and 40 years of age. His reply to my question was that he had never heard anything of the kind and did not believe there was anything in it. That answer I thought was not proof, so the next person I asked was one of the best known trainers in England. His answer was characteristic of the man and was certainly definite. It was a gem not to be lost, so I give it you word for word. It was, "What rot! What a devil of an idiot the man must be. You can cut the tail off altogether if you like and it would make no difference." This I took to be an answer calculated to convince the most sceptical, but as I happened to meet a gentlemen who trains racehorses on the Continent I thought I could do no harm by asking him as well. This gentleman, by name Mr. Corser, of Turin, in Italy, told me of a mare trained at the time by Hesp, the trainer of Kincsem, a mare by Ostragar, and trained in Hungaria, was docked because of a diseased tail, trained and won a race afterwards. I make no further comment, except to ask Professor Pritchard where he got his information on this point, as I can scarcely conceive that he would in a prepared speech make a statement of this description unless he had some foundation for it.

Argument No. 8 appears to me equally extravagant. It is that the tail acts as a steering gear, that it enables the animal to turn quicker and so on. This, I think, is entirely and wholly disproved by Nature herself, for the particular class of animal that can twist and turn quicker than any others with which I am acquainted have no tail worth mentioning. I refer to the Rodentia, hares and rabbits; but if it were true, would it not be a strong argument in favour of docking. I have never known a horse willing of himself to turn have any difficulty owing to his short tail to turn round either a street corner or in his stall, but I have known of many cases which would have been docked very short indeed if by so doing it would have prevented them turning quite so quickly as they were in the habit of doing.

Argument No. 9. That Nature never does anything in vain, and that if the horse's tail would have been better short it would have been made short, and if it was not intended to be of any use it would not have been placed there. No one, I think, contends that a horse's tail is of no use, but as against that argument I have not

yet heard of a thoroughly satisfactory explanation of the use of a pig's tail, in fact the only attempt at an explanation I have heard was that it assisted in holding it down on a tressle while it had its throat cut; but if a use is found for a pig's tail an explanation will have to be given as to why it is that, if useful, nature allows so many pigs' tails to slough off until not an inch is left. No! it is a sentimental argument that won't hold water. It might perhaps be held that Nature is the best exponent of what is necessary in a state of nature, but put Nature under artificial conditions and I do not allow that Nature cannot be improved upon.

The next two arguments had better be taken together as they answer each other. If by docking you take away Nature's provision for removing flies from the quarters, so you would by cutting off the tail level with the stump. If it be cruelty to take away Nature's provision for removing flies from the quarters, then it is cruel to cut the hair, indeed more so than docking, because generally speaking the hair left on a docked tail will extend further than the length of the original dock, and I directly traverse the statement that cutting the hair level with the stump would answer every purpose of docking. You have only to get jammed in a narrow lane out hunting and see an undocked animal whisk his tail over the reins of the horse immediately behind him to show you the fallacy of this. If only hair crosses the reins nothing happens, but if the dock itself gets over it will fasten the rein tightly, rendering the horse whose rein is attached quite beyond the control of the rider, and will very probably set the horse whose tail has caught the rein both bucking and kicking.

I think I have now met the whole of the arguments I have ever heard against docking, and I am now only going to detain you a few minutes on my opinion of the action of the R.S.P.C.A. I remember that at the first National Veterinary Congress held in London Mr. Colam was highly indignant at the suggestion being made that the Society was governed by a lot of sentimental old ladies, but the Society itself seems to be endeavouring to prove that it is so. If Mr. Colam wants to advertise the Society with the object of obtaining subscriptions from a quantity of sentimental persons who know nothing whatever about this particular subject, he may be going the right way about it, I do not know. But if he really wants to suppress docking, let him persuade the Royal Agricultural Society that it is unnecessary and therefore cruel. Let him endeavour to show the judges at horse shows that docking is unnecessary, and that will do more in twelve months to stop docking than all the prosecutions he has undertaken. But Mr. Colam knows perfectly well that it is no use trying to persuade horsemen not to have horses docked, and if he does not know he ought to know that the only way to stop docking is to convert public opinion.

To prohibit veterinary surgeons from docking horses would simply mean to transfer the performance of that operation to another class of individuals not so well qualified to perform the operation in the most humane manner possible. As it is now, not one-half the horses one sees docked are done by veterinary surgeons. So simple is the operation to perform that grooms, horse-breakers, and blacksmiths are the usual operators; and whoever docked one for a dealer, I should like to know? Finally, just a word on the financial question. It surely cannot be seriously argued that a profession which has laboured so hard and so heartily in supporting those effective measures which have cleared the country of the cattle plague, pleuro-pneumonia, and foot-and-mouth disease—with how great detriment to its own financial interests, only those veterinary surgeons who flourished in the years when these diseases were rampant fully appreciate, but all of us know the loss to ourselves must be very considerable from their extinction; yet I answer for it, that not even the poorest of us will have them back if any efforts of ours can prevent it—and will a profession with a history like this support cruelty for the few pounds per annum that it would gain? Gentlemen, I will not argue the point; it is not worthy of argument. It must be granted that if veterinary surgeons maintain that docking is a necessary operation it is because they honestly and conscientiously believe that it conduces to the greater safety of the persons using horses, and if there are a few veterinary surgeons opposed to docking, so there are medical men opposed to vaccination.

I conclude by proposing the following resolution. "That in the opinion of this Society the docking of horses is a necessary operation."

This was seconded by Mr. Hopkin, and carried unanimously.

WESTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

The 14th general annual meeting was held at the New London Hotel, Exeter, on April 22nd last, under the presidency of Mr. H. P. Chase, of Tiverton. The other members present were Messrs. Downes, Barrett, Dunstan, Heath, Collings, Penhale, Elder, Bloye, Golledge, Baker, Howard, Place, and Nelder, hon. sec. Visitors: Messrs. Collings, Hewlett, Southey, Watkins and Prof. Hobday.

A move was made, as soon as all were assembled, to the stable yard, where Professor Hodbay performed the operation of median neurectomy on a horse, the subject of chronic tendonitis in the off fore leg. The animal was cast by means of hobbles on the off side, the top legs secured by cross hobbles, and the under leg pulled well

forward by means of a rope round the fetlock. The seat of operation was carefully denuded of hair and rendered aseptic, and the skin anæsthetised by ethyl chloride sprayed on; then a mixture of cocaine and eucaine in solution was injected under the skin, and a period of three to four minutes allowed to elapse before commencing the operation, to allow of the necessary stage of anæsthesia being reached, a small incision was next made directly over the median nerve as it passes inside the elbow, and the nerve itself promptly exposed and a piece about 1½ inches in length excised, with but the slightest appreciable sign of pain at the moment of division of the nerve only. At no other period of the operation did the animal evince the slightest sign of pain. No twitch was used after casting. The edges of the wound were then united by a couple of close silk sutures, and the patient allowed to rise. He was immediately walked and trotted and went perfectly sound; before the operation he was very lame.

The meeting was held directly after the operation, the president, Mr. H. P. Chase, taking the chair.

Letters and telegrams of apology for non-attendance were read from Messrs. Olver, Ascott, Seldon, W. Penhale, and Capt. Killick.

The minutes of the last meeting were read and confirmed, and after the presentation of the annual report, which was a very satisfactory one, by the Hon. Sec., the election of officers was proceeded with.

Mr. Wm. Penhale, of Holsworthy, was proposed by Mr. Elder, and seconded by Mr. Downs, as president for the ensuing year, and a unanimous vote was passed in favour of his election if he would consent to accept the post. Mr. Penhale not being present has since been communicated with, and has accepted.

Mr. Dunstan of St. Mellion, was elected Hon. Sec. on the proposal of Mr. Bloye, seconded by Mr. Elder. The post of Hon. Treas. to be retained by Mr. Nelder.

A very hearty vote of thanks to Mr. Nelder for the very able and efficient manner in which he had performed the duties of sec. during his period of office was proposed by Mr. Bloye and seconded by Mr. Penhale, and carried unanimously.

On the motion of Mr. Bloye, seconded by Mr. Elder, it was decided to allow the secretary the help of a shorthand writer at future meetings of the Society.

Mr. W. Penhale thanked Mr. Chase for the courtesy and energy he had displayed during his presidency, and proposed that a very hearty vote of thanks be accorded to him; this was seconded by Mr. Bloye and carried unanimously

Mr. Adams of Okehampton, was proposed as a member of the Association by Mr. Dunstan and seconded by Mr. Bloye.

Plymouth was decided on as the next place of meeting.

Professor Hobday next read his paper.

THE CHOICE OF A LOCAL ANÆSTHETIC FOR SURGICAL OPERATIONS.

By Fred. Hobday, M.R.C.V.S.

When honoured by a request from the Secretary of your Association for a paper, I sought about some time for a subject, and at last fixed upon "The Choice of a Local Anæsthetic for Surgical Operations" as a title. In addition, by the courtesy of Mr. Chase and Mr. Nelder, I have been able to supplement it by a practical demonstration of the effect of two anæsthetics on the living subject during the performance of the operation of median neurectomy which you have just witnessed.

The subject of local anæsthesia is one which concerns every practitioner who operates, and one which covers some fresh ground as well as much which has been gone over before. In my paper to-day I propose to include only those local anæsthetics which are used for surgical operations and not those such as clove oil, iodoform, etc., which are used for medicinal purposes.

Local anæsthetics are made use of for minor operations on all our animals, and are well worthy of our notice both with the view of alleviating pain and for enabling operations to be performed more neatly: still, in all cases we must first consider the safety of the patient, and, on account of the danger attending the use of some of them from systemic absorption, we must be prepared to know something about their toxicological actions (if any), and the limit of dose to which we can proceed with safety.

I propose to discuss the local anæsthetic values of cold water, ice, ether spray, ethyl chloride, eucaine, cocaine and guiacol; and to deal only with those points which I think will be of interest to those of us who are engaged in every-day clinical work.

Cold water. With reference to the first four viz., cold water, ice, ether, and ethyl-chloride, the degree of anæsthesia depends chiefly upon the amount and intensity of cold produced. The anæsthesia following the application of cold water, even in the coldest weather, is very transient; and it is only in very minor operations that we are able to demonstrate its value.

Ice. If we go a stage further and apply ice the degree of anæsthesia obtained is of a deeper kind, but still very transient, besides which we have the disadvantage of not always being able to obtain it when required.

Ether, Ethyl-Chloride. In ether and ethyl-chloride we have drugs by the aid of which we can artificially freeze the parts, and thus deprive them temporarily of sensation. They each possess the power of abstracting heat from the tissues, and, if the application be prolonged for a sufficient length of time, of freezing them into a solid mass. Of the two I think that the results obtained by ethyl-chloride are rather better than those of ether. It

seems to me to act quicker, and to produce an anæsthesia which lasts longer.

In all cases where any of the above are used it is scarcely needful to say that the eff ct is manifested much quicker and better if the hair be previously removed, either by scissors or better still by shaving, and the parts made as dry as possible. With agents which produce freezing, care must always be taken not to maintain the parts in this condition for too long a time, or necrosis is likely to follow as a sequel. About 1 or 2 minutes is what I have usually allowed, and I have not as yet had any bad effect of this kind. They are best suited for minor operations of the skin, such as the lancing of abscesses, the removal of superficial or subcutaneous tumours, or cysts, or for merely making incisions.

They are not so suitable for operations involving the cutting through of thick muscular tissues, as when frozen it is not easy to take up bloodvessels if required, and pain returns again as soon as the parts become thawed Again, in operating on thick muscular tissues, the warm blood which follows a stroke of the knife interferes with the freezing action of the anæsthetic.

They have the advantage over other drugs of not being in any way absorbed, so as to produce toxic effects, unless inhaled through the respiratory passages, and even in that case plenty of warning would be given by the patient. Ether is usually applied by the aid of a spray apparatus and ethyl-chloride is now conveniently supplied in tubes, the heat of the hand being sufficient to cause a fine stream to be directed wherever desired.

Anæsthesia is complete when the parts turn a whitish colour, and feel hard to the touch. This takes place in from half a minute to a minute and a half, and lasts for about two minutes. In hot weather, on account of the more rapid evaporation which takes place, the effect is manifested rather more quickly than in cold weather. For operations on the cornea of the eye the above are not used on account of the amount of irritation they produce.

Turning from these very superficial anæsthetics, we have next to consider two others whose manifest effects are certainly much deeper and more prolonged, viz. cocaine and eucaine. In using these we have a distinct element of danger to contend with, in that they possess toxic properties. It is necessary, therefore, that before making use of them we shall know to what extent we may proceed with safety. Each of them occurs in the form of a crystallized powder, whereas ether and ethyl-chloride are liquids. Cocaine is a vegetable alkaloid obtained from the leaves of the coca plant, whilst eucaine, which has been recently discovered, is a chemical preparation possessing exactly the same formula. The compounds which we make use of are the hydro-chlorate.

Cocaine hydro-chlorate. It is readily soluble in cold water, but decomposes on boiling, and the solutions

generally made use of vary from one to ten per cent. It should always be made fresh when required as decomposition takes place, and even after a few days the solution is not to be depended upon. If it is absolutely necessary to keep it in solution a small quantity of salicylic acid added to it will help to preserve it for a longer time. When in solution it is readily absorbed into the system from subcutaneous, serous or mucous surfaces, particularly from the first named.

It is of especial value for the removal of tumours, or for cutting into some tissues. Its effect is manifested around the seat of injection for a space of from half an inch to an inch and a half. After an injection complete local anæsthesia is produced in from three to five minutes and lasts about 20 or 25 minutes.

Superficially it can be used to deaden pain when painted on parts where the skin is thin, such as the under surface of the abdomen and thigh of dogs, cats and other small animals, but on the thicker parts of skin its external use is not encouraging. On the cornea its effect is splendidly shewn in from one to three minutes.

Eucaine hydro-chlorate: Its results are somewhat similar, although there are some differences which must not be overlooked. The chief advantages over cocaine claimed for it are:—first that it is cheaper: secondly that when in solution it keeps without decomposing: thirdly that the solution can be boiled and thus rendered sterile without altering the anæsthetic power of the solution; and lastly that it is less dangerous to use, the toxic dose being larger. At present opinions differ very much as to whether its anæsthetic properties are as good as cocaine, some observers state that it produces a deeper and more lasting anæsthesia, and others make the opposite assertion.

My own observations made upon about 50 cases in horses, cattle, dogs and cats, lead me to think that it is not so valuable for surgical operations as cocaine in veterinary practice, except for anæsthetising the cornea. Anæsthesia is not produced so rapidly, and even although in some cases we allowed 5, 10 and even 15 minutes to pass before attempting to operate, the results were not in any way comparable to those obtained by using cocaine. We have had some especially favourable cases for comparing the respective values of the two drugs. Such for instance as the application of cocaine to one eye and eucaine to the other at the same time in the same animal; the removal of multiple tumours from the same part of an animal, using cocaine for one and eucaine for another.

We made one discovery which I have not seen mentioned in any other accounts of this drug, and that was that by using a mixture of cocaine and eucaine together in solution we got the better and more rapid anæsthetic properties of the cocaine and at the same time a greater security from toxic effect; for as I have already stated the toxic dose of eucaine is certainly slightly larger than

that of cocaine. I consider this fact of some importance, as when desirous of producing local anæsthesia in a small animal in which there would be danger of giving an overdose of cocaine I should certainly advise a solution of the mixed drugs.

With regard to the toxicology—a knowledge of the poisonous doses and symptoms produced by each of these drugs is of the utmost importance, as ignorance of these points may lead both patient and operator into serious consequences, particularly as we are not yet acquainted with a certain antidote.

With cocaine, in cats and delicate breeds of small dogs, certainly not more than from half to three quarters of a grain can be employed subcutaneously with safety. I have lately had the mishap to lose one patient, a cat weighing 5½ lbs., from the subcutaneous use of one grain. In the hardier breeds of dogs not more than two grains for a dog the size of a fox terrier, or four grains if about the size of a retriever or collie.

In horses and cattle it is not advisable when operating to use more than ten to twelve grains.

In the case of the horse, the largest dose I have seen used at one time has been a dram, the result being to make the animal very excited and almost frantic for a while, the effects gradually passing off.

The reason why an over medicinal, though not actually toxic dose, must be avoided when operating is that one of the symptoms produced is that of spasmodic clonic involuntary muscular twitching, which interferes with the progress of any operation requiring delicate manipulation and dexterity. I have seen as small a dose as ten grains produce this in a cab horse when used to aid in the performance of plantar neurectomy.

The symptoms which follow injection of cocaine are : In two or three minutes the animal becomes unusually quiet, there is a constant licking of the lips and a flow of thin watery saliva, which collects at the back of the pharynx and around the lips. Hyperæsthesia is well marked, the ears being moved backwards and forwards at sounds.

Up to this point no alarm need be felt. The next stage is that of uneasiness and violent clonic involuntary spasms of all the voluntary muscles of the body, particularly noticeable in those of the jaws and limbs at frequent intervals. These interfere with delicate operative measures, and are besides, if at all violent, a symptom of great danger. The patient should at once be released from all restraint, put in the fresh air, and antidotal measures adopted.

No certain antidote is as yet known, but it is found that either inhalations of nitrate of amyl, or subcutaneous injections of morphia, diminish the force and frequency of the fits.

With eucaine the danger from poisoning is not quite so great, as the amount tolerated is slightly larger than

that of cocaine. The operator may with safety give about one-fourth as much again as in the case of cocaine. For example—a cat in which a local anæsthesia was attempted by the use of one grain of eucaine, upon two separate occasions without any local symptoms, was poisoned a few days later through unfortunately using the same amount of cocaine.

The extreme limit of safety in the case of the dog and cat is about one-fifth of a grain to each pound of body weight. In the horse there are very few cases which would need more than twenty grains of eucaine, and even this amount will produce less twitching and consequent interference with the operator than would result from 10 or 12 grains of cocaine. One dram is the largest amount I have given at once, and the symptoms produced were not in any way as severe as those produced by a similar quantity of cocaine in the same animal.

The symptoms which follow eucaine do not follow so rapidly as with cocaine. There is certainly hyperæsthesia and salivation, but not to the same extent, and the clonic spasms do not commence at such an early stage, nor do they occur at such short intervals. They are, however, very violent when they do occur. I think too that the animal retains consciousness for a longer period before death.

It will thus be seen that in using solutions of either of these drugs the greatest care must be taken for the safety of the patient, and in this respect they differ very greatly from the ether spray or ethyl-chloride.

The last drug which I purpose dealing with, known as guiacol, is one from the accounts of which I had hoped great things, but up to the present I have been somewhat disappointed. I cannot say that my experience has been large, being limited to some 12 cases, but the results have been various, and on several occasions I have had to fall back upon cocaine. Its anæsthetic effect was first observed by a French chemist who applied it in the form of an ointment to relieve a painful burn. Since then it has been used hypodermically by several observers for the production of local anæsthesia, the opinion of some being that it is more powerful than cocaine and at the same time has the advantage that ten times as large a dose can be given without ill effect or any unpleasant sequel. It may sometimes cause sudden lowering of temperature and collapse. The drug is directed to be mixed either with water or olive oil, in the proportion of from 1 in 20 to 1 in 10, anæsthesia being produced in from five to ten minutes. As I said a few minutes ago I have only tried it in a dozen cases, and the results have been various. In one case of amputation of a cat's injured tail, before operating we allowed five minutes after injecting the fluid, and the animal evinced no pain. Again for stitching up skin wounds or for painting over wounded surfaces the results have been good after seven or eight minutes continuous application,

but for removing tumours and operations of that kind, the anæsthesia was not to be compared with that of cocaine. I have. however, been able to satisfy myself that its toxic property is very much less than that of cocaine.

Before concluding my paper I must refer to the original title, viz., "The Choice of a Local Surgical Anæsthetic" and briefly make the selection.

So far as my experience goes at present, if I had to choose for a trivial operation, such as the opening of an abscess, or the removal of a non-ulcerating fibroma, I should fix upon ethyl-chloride ; but for an operation involving deeper structures I should select either a mixture of eucaine and cocaine or cocaine alone. There is plenty of room in the field of therapeutical research for the discovery of an ideal local anæsthetic, and by an ideal one I mean one by whose aid the desired effect can be produced fairly rapidly, deeply, and without fear of poisoning the patient or of subsequent necrosis or other damage to the parts.

I trust that you will give me the benefit of your experiences with any of the drugs I have named, or any others which I have omitted, as it is chiefly by the interchange of ideas that we can hope to make progress.

Discussion.

Mr. Chase rose and said we all owed a deep debt of gratitude to Professor Hobday for coming here to give us such an instructive and painstaking paper ; and invited gentlemen to commence the discussion.

Mr. Bloye said he was somewhat loth to start, but he considered that Professor Hobday ought to be congratulated on the very able manner in which he conducted the operation of median neurectomy at the commencement of the proceedings. Coming to the question of local anæsthesia he was most enthusiastic on the use of cocaine, especially for eye cases, and advised caution against giving an overdose

Mr. Golledge expressed his sense of gratitude for the very able paper, and could not see that the operation of median neurectomy could be permanently successful in cases of broken-down tendons, but would like to hear the opinions of anyone who had experience of it.

Mr. F. E. Place added his thanks to the professor. The operation in question he had no doubt was useful, but he had heard that it was practically useless. He considered cocaine to be especially dangerous to cats, even in very small doses.

Mr. Elder had no fault to find with anything he had seen or heard that day, and was gratified to see such a successful meeting. He was a thorough believer in the use of cocaine, and ethyl-chloride should be used with it. He had great pleasure in thanking Professor Hobday for his instructive paper and demonstration.

The President now said that as time was on the

wing it was desirable to bring the meeting to a close. It had been really a most instructive lecture, and he considered the effects were most gratifying.

Prof. Hobday, replying on his paper, said he was much obliged for the kind words and expressions he had just listened to He had performed the operation of median neurectomy on 72 horses, and there had been no cases of sloughing of the hoof, and only one softening and consequent breakdown of the tendons, and up to the present he considered the results had not been bad.

The meeting now came to a close, and Mr. Chase entertained the company to a very enjoyable dinner, after which the usual toasts were drunk.

CENTRAL VETERINARY MEDICAL SOCIETY.

An ordinary general meeting was held on Thursday night the 3rd instant, at the Royal College of Veterinary Surgeons, 10 Red Lion Square, Bloomsbury; Vet.-Lieut. Col. Kettle, A.V.D., the president, occupying the chair. The other fellows present were :—Messrs. W. F. Barrett, J. Baxter, J. K. Bruce, A. L. Butters, F. W. Dowell, H. Edgar, A. E. Gostling, H. Gray, J. S. Hurndall, C. J. Humphreys, W. Hunting, Vet.-Lieut. P. J. Harris, A.V.D., Hugh A. MacCormack, Professor J. Macqueen, F. C. Mahon (hon. Sec.), W. Perrymann, R. Porch, F. Samson, H. Singleton, W. E. Taylor, P. Vincent, and six visitors.

On the motion of Mr. Hurndall, seconded by Mr. Barrett, the minutes of the preceding meeting were taken as read and were confirmed

A letter was read from Mr. J. Rowe, the honorary treasurer, stating that he was unable to attend in consequence of his having another engagement.

Nominations.

The following gentlemen were nominated for election as fellows of the Society at its next meeting :—Vet.-Major J. J. Philips, A.V.D., of Woolwich, S.E.; and Mr. Hagmier, 413 Mile End Road, E.

The Sale of Veterinary Drugs.

Mr. Gostling called attention to a matter which had come under his notice which he considered deserved some attention from veterinary practitioners. He alluded to an offer on the part of a firm of wholesale druggists to supply drugs to veterinary surgeons' clients at the same prices that they charged to members of the profession.

After some discussion,

Mr. Hurndall proposed, and Mr. Samson seconded the subjoined resolution which was carried unanimously :

"The members of the Central Veterinary Medical Society desire to notify you that it has come to their notice that you are issuing a price list to horse dealers and other private horse owners offering to supply drugs at prices similar to those quoted to the profession. The members of this Society regret to observe this, as it cannot but be prejudicial to the interests of the profession of whom many are your customers."

The Hon. Secretary (Mr. F. C. Mahon), was directed to send a copy of this resolution to the firm concerned.

THE SUPPRESSION OF RABIES.

Mr. W. Hunting said I propose to-night to refer to some of the various points concerning rabies shortly but sufficiently, I hope, to evoke discussion. First as to the prevalence of the disease. At the present time there are some twenty different counties in Great Britain unaffected with rabies, but the facility with which dogs are moved by train from one part to another renders it likely that the disease may be taken from one county to another in the course of a few hours. Of the last two cases of rabies I have seen in London one of them had only been in town a week. It came from Paris. The other had been in town one day. It came from Hampshire. That seems to me a danger worth noting, because it shows the importance of enforcing any regulations, not after a place has become thoroughly infected, but on the very first appearance of the disease in the district. I have a tabular statement here showing the cases that occurred during the first sixteen weeks of this year from moving. Worcestershire, Herefordshire, and Gloucestershire had no cases up to the twelfth week. Then there is a remarkable occurrence. In the 12th week one case appears in Worcestershire, one in the 13th week in Herefordshire, and one in the next week in Gloucestershire. Then again there is another case in Gloucestershire and another in Worcestershire. Doubtless if one could trace those cases one would find they were just over the boundary, and the point I want to make is that if rabies regulations were enforced on the appearance of the first case in Worcestershire, it is possible we should not have had the other cases subsequently in the neighbouring counties. Now as to the method of the spread of this disease. Of course practically all cases are spread by the bite of a dog. But you will remember that some time ago an outbreak of rabies occurred in England among deer. At first you had three or four cases at a time, then a week elapsed and you had three or four more, and then a further period passed and more deer were attacked. This was the experience in the large herd at Richmond Park and in the Marquis of Bristol's place in Suffolk. It seemed as though the disease was spread by the deer from one to the other. Another ex-

planation was that some dog had bitten the whole of them at one time, but this could not be reconciled with the repeated outbreaks. Deer have a habit of licking each other and rabid deer have a particular partiality for licking and to such an extent as to abraid the skin. I think there is very little doubt that deer have the power of spreading rabies among themselves by licking when once the disease has got into a herd. This disease with its long period of incubation, is doubtless often due to the importation of a dog with the disease undeveloped, but latent, into a district previously uninfected. In this way dogs brought from abroad, in an apparently healthy condition, are a great danger. In my experience there have been two or three distinct increases of rabies in this country. The first one, I remember, followed the Franco-Prussian war. At that time there is no doubt people who went abroad took their dogs with them. The dogs were bitten abroad. When those dogs were brought back they infected the localities to which they returned. Up to the year after the Franco-Prussian war rabies in London, so far as I know, was very uncommon. Two or three years afterwards, however, the disease increased to an enormous extent. At that time, too, I noticed that the dachshund was the most commonly infected. It was then the most fashionable of imported dogs. About the same time there was an outbreak of rabies in America, and there the remarkable thing was the Pomeranian was the dog most frequently infected. That was the then fashionable dog in America and it was an entirely imported dog. I mention this because I think the importation of rabies has not had sufficient attention drawn to it.

As to the term of incubation, my own experience induces me to fix it at about 25 days. I believe there are cases where the period is as short as 14 days, while in others, it is said, rabies does not develop for twelve months. In the only two carefully observed cases that I remember to have heard of where the period was very long, the dog was kept in a state of confinement, and it has often occurred to me that possibly keeping the dog locked up, perfectly quiet, may prolong the period of incubation, whereas if the animal be allowed to roam about subject to accidents and injuries the disease might prove shorter in its period of incubation. As to the duration of the disease itself: this is exceedingly important as an aid to diagnosis in some cases. As far as I know the majority of cases die on the fifth day, and none of them live over eight days. Therefore in a case of doubt if a dog is kept under observation for a period of eight days and is not at the end of that time distinctly rabid, there need be no fear whatever as to the condition of that dog. Very often we have had discussions on what are called "premonitory symptoms." I do not believe in the existence of any premonitory symptoms of rabies. I believe that from the very first symptom of any kind which

shows itself—from that period, and possibly even antecedent to that period, the dog is infective and potentially able to cause rabies by biting another animal. There is in a well trained class of dog and pet dogs a period of comparative harmlessness. A well trained dog in the first stage of rabies seldom bites its master or mistress, though it might possibly attack a stranger. A test of rabies is, no doubt, the disposition of an infected dog to attack other dogs. I have never myself seen a case of the sudden development of rabies but, I believe, one or two such cases are on record. One is where some boys in France caught a dog and castrated him. He bolted, swam across a river, bit some sheep and the sheep so bitten died of rabies. If the dog had not been castrated he might, however, still have been infective.

As to the symptoms of the disease, we have the two forms—the so-called violent and the dumb rabies. I notice that in the London County Council's hand bill, descriptive of the symptoms of rabies, no hint is given to the public that a dog may look perfectly harmless and yet be virulently rabid. In this notice mention is made of a dog's change of habit, restlessness, desire to hide in dark and secluded places, depraved appetite, altered ovia, fits of excitement, and so on, but no mention is made of the fact that some of the most dangerous kinds of rabies show none of those signs whatever. The popular idea of a mad dog is a dog with convulsions. All through the summer policemen kill heaps of "mad dogs," none of which are rabid, most of which are puppies, and all of them howling and foaming at the mouth and running round in a big circle. One would think that by this time the police and the authorities might have got past that stage of ignorance. To my mind there is very little difficulty in a veterinary surgeon diagnosing the disease in the living animal. I say very little difficulty because I admit there are some cases in which the symptoms are almost negative. I set a good deal of store myself upon the appearance of the dog's eye. There is a sort of glassy, stupid expression of the eye in a rabid dog in the very early stage of the disease. If you want to develop the symptoms the best thing to do is to tie him up or put him in a cage. If you have a rabid dog, no matter how quiet he is, and tie him up, put him in a cage and annoy him, he will never fail to manifest violent symptoms at once. Some cases there are where the symptoms are very badly marked at first. I remember one in particular where the dog would not eat and that was the only symptom his owner had seen. The little dog was running about the garden and I noticed that every now and then he stopped and made a movement of deglutition. He was attempting to swallow his own saliva. The difficulty in the act was very marked but might have escaped a non-professional man. When he tried to swallow he stood and brought his nose to-

wards his chest. That symptom was the only one at the time which really made me suspicious. The disease rapidly developed. When a rabid dog is tied up or put in a cage his method of drinking is, I think, very significant. He dips his head deeply into a vessel of water and will lap sometimes for five or six minutes at a time and yet not swallow. When the dog has finished lapping you will find the water left in the vessel is thick with the admixture of saliva. That, I take it, is a very significant symptom of disease.

As to post-mortem lesions, using the word lesions in the strict sense, there are none. At any rate I have made a large number of post-mortems, and I have failed to find any characteristic lesion of any organ in the body which would enable me to say that the dog was suffering from rabies. Of course there is a sign we often get —a sign that is very seldom absent—and that is the presence of strange foreign substances in the stomach. Sometimes we find the stomach absolutely empty save for such odd things as a couple of matches, a bit of carpet, little bits of wood, a piece of a jam pot, and various other things of that kind. Very rarely have I found food in the stomach of a rabid dog. When one has both the opportunity of examining a rabid dog during life and making a post-mortem examination afterwards, I believe that any man of experience can express an opinion as to this disease as positively, and is as likely to be right, as if recourse had been had to the inoculation test. Of course there are all the negative symptoms, such as the absence of other diseases. It is possible for a puppy to have rabies but in 99 cases out of a hundred all the violent and exciting symptoms shown by puppies are due to convulsions; and it is worth while to remember that puppies have almost as curious tastes as rabid dogs. They eat all kinds of things, we find bits of cotton, of carpet, portions of slippers, all manner of odd things in the stomach of a puppy which is not suffering from rabies. The inoculation test I regard as absolutely certain, not, however after the inoculation of one rabbit only. To inoculate one rabbit and wait for its death may be very suggestive if it happens to die twelve or fourteen days afterwards, and to have paralysis of the hind quarters. But there is always the possibility of being wrong with one. If, however, the operator inoculates two or three rabbits and they all die about the same time and all with the same symptoms, then rabies is established beyond the possibility of doubt. Most local authorities now require the adoption of this test, some compelling it to be carried out. With the knowledge that a dog has bitten a human being there is now no excuse for not submitting that dog to the test of inoculation.

With regard to suppressive measures the law at present directs compulsory notification of the disease by the owner, inspection, slaughter of the diseased and bitten

animals—if bitten by a distinctly rabid dog—and isola tion of the suspected. All these things are required under the latest rabies order of the Board of Agriculture. The local authorities are obliged to carry them out. Every one of them I approve of. The Board of Agriculture have reserved to themselves the right to issue a muzzling order, and local authorities cannot now issue such order. In relation to a muzzling order there are many considerations worth discussing. When such order is wanted is the first consideration. I hold that it is a great mistake of the authorities to wait until there are a number of cases before putting the muzzling order in force. There were ten cases from the beginning of this year in London before the muzzling order was enforced, while in Lancashire there were nine, Yorkshire five, Gloucestershire five, Middlesex four, and so on. It seems to me that if the muzzling order is to be effective it should be enforced in any district at the outbreak of the first case. It should be applied not for long, perhaps, or over a considerable area, but when you have one case in a district if you apply the order—say within a ten mile radius for a month—the possibility is you will catch the next case and prevent any further spread of the disease. We know, of course, that a rabid dog may travel more than ten miles. If, however, he travels ten in a straight line it is an unusual occurrence. He may circuitously travel forty miles and yet never get out of the ten mile radius. I think a ten mile radius would be sufficient for the enforcement of a muzzling order on the appearance of the first case of rabies. Where you have a number of cases the area should be increased to at least ten miles outside every case so that the area involved might cover 30 or 40 miles. Then for how long should the order be operative? I think a rabies order ought to be in force for at least three months after the last case appears. I do not think it is worth while annoying all the dog-owners by keeping the order going for six months unnecessarily. There may be more cases but there will be very few, and you have to consider the amount of annoyance you are causing the public, and to render an order effective you must enlist as far as possible the hearty co-operation of the dog owners. Without the co-operation of the dog owners it is difficult to enforce any suppressive measures. It has been suggested that the only logical thing to do in an island like this is to enforce a muzzling order generally over the whole country for a period of six months or more. Yes, that is very logical and it would be very well if we were all philosophers, or inhabitants of Jupiter and Saturn; but to my mind it is not a practical order to enforce in Great Britain at all. There are entire districts, county after county, absolutely free from rabies. The North of Scotland, for instance, there has never been, I believe, a case of rabies. Well, what is the use of enforcing an order there. The effects of a universal order would be to render the order

absurd and to induce a great deal of grumbling and objection. You cannot, without annoying people, impose upon them a coercive regulation when that regulation is not locally required. By applying the regulation to every case as it appears and by increasing your area if you have two cases you can equally well suppress rabies. I say that because the disease has been repeatedly suppressed by a muzzling order and in many places—London, Edinburgh, and other places. There was a fresh outbreak simply because the regulation was not continued long enough. With regard to past muzzling orders it is to be remembered that no special muzzle was enjoined. Everybody used what muzzle seemed good to him. Many people cut the front of the muzzle and hundreds of muzzles did not prevent a dog from biting. Lots of them were worn round the neck or on the ear. Still rabies was stamped out. What does that mean. It means, I think, that the muzzle is simply a token, and the essential part of a muzzling order is the immediate destruction of diseased dogs. (Hear, hear). People in a house, at any rate, wherever they have had one case of rabies look pretty sharply after their dogs. In the street a wandering dog belongs to nobody and is not looked after unless the police look after him. When a muzzling order is enforced, no matter what kind of muzzle is prescribed, a dog found unmuzzled is seized by the police and—I was going to say—forthwith slaughtered. But he ought to be slaughtered. Nothing strikes me as greater folly than seizing and collecting all the mongrel and escaped dogs in London, taking them to the Dogs' Home, and after detaining them there three or four days to see whether owners turn up, selling them to whoever may care to buy them. It may be that this brings grist to the Dogs' Home. No doubt the managers of that home have great expenses, and the sale of these dogs yields the home some money. But when you have once caught a dog during the prevalence of rabies in a district that dog should never leave the Home alive unless he is claimed by his owner. If rabies is about who knows which of the dogs seized and removed to the home may not have been bitten by a rabid dog. Failing this knowledge, and if the animal is not claimed by his owner, he should not be sold to an innocent purchaser, but should be destroyed. With regard to exemptions from the muzzling order, I cannot understand upon what grounds of logic or expediency an exemption is based. I do understand that during the hunting season when hounds, deemed essential for sporting purposes for the rural social arrangements of England, and the health and happiness of many people, are well looked after they may consequently be fitly exempt during the hunting months. But for this season only should they be exempted from the operation of a muzzling order. Then, to be fair, you should exempt the shooting dog during the shooting season. I know nothing about the training of

greyhounds and, therefore, I do not know during what season they might be exempt. But it strikes me that from April up to, say, the end of July there ought to be no exemptions whatever. One is met with a difficulty, perhaps, in the case of the sheep dog. But the sheep dog is not always used for rounding up sheep. Unless he is in the absolute act of doing so, for which his muzzle might be altered in front by the owner and the proceeding winked at by the police, I see no reason why the sheep dog should not be muzzled the same as the others. The muzzles should be worn as a means of identity. It should be sufficiently displayed on the dog's head as to serve as a token.

Another subject about which I should like to say a word or two is the theory enunciated by one of the veterinary surgeons of the Board of Agriculture and by an executive officer of the Board that rabies is spread and kept up by the ownerless cur. We have no evidence of the existence of such a class of dogs. I deny absolutely that there is such a class. No dog is long an ownerless cur in London. The poor people of London and their children reveal a marvellous liking for pets. As soon as a stray dog enters any little back street in London you will see it immediately surrounded by children. Perhaps this accounts for the fact that a very large proportion of the cases of hydrophobia in the human subject occur among children. The children of the poor wear short petticoats and have bare legs and are thus exposed to attack. There is another explanation. A stray dog is nearly sure to be collared by a child as soon as the child gets the opportunity. Sometimes it is the other way about, and the dog collars the child. Now we are surrounded by the sea. As I have pointed out rabies has appeared to the greatest extent in this island after wars abroad, after the passing of people to and from the European Continent. Not only after the wars for I remember that some years ago Algiers suffered very severely. I remember that a dog was brought to me which a few weeks previously had been bitten by another dog in the streets in Algiers. At that time the French were making great efforts to stamp out the disease in Algiers. It has taken years to arouse our Board of Agriculture to the fact that the disease is imported here, and that once stamped out, unless effective regulations are enforced with regard to imported dogs, rabies will soon be imported again. I think it is a feather in the cap of the Board of Agriculture that it is now alive to the importance of this subject, and has directed that an Importation of Dogs Order shall be enforced on and from the 15th of September next. If it is desired that a dog should be brought from abroad into this country the owner must give notice to the authorities, supply his name and address, describe the place to which he intends to take the animal and undertake to properly look after the dog, isolating it if necessary.

Then if the dog be landed the owner obtains a license. Everything depends upon how the license is worded. It seems to me that if the license merely requires a dog to be tied up or put in a cage, the authorities may just as well prohibit the importation of dogs completely. I do not think the Board of Agriculture will do that, because when once the name and address of the owner and the destination of the dog are ascertained, it will be an easy matter to specify on the license and to enforce conditions one of which should be that the dog should wear a muzzle for three or four months, or whatever the time fixed might be, after its arrival in this country. Another condition should be that the owner should report the arrival of the dog to the local authorities when he reached home. Further he should report any change of address up to, say, three months or whatever the time may be, and meanwhile the dog should be inspected once a month by the veterinary surgeon of the local authority. Those regulations seem to me to be quite ample to admit of the detection of any cases of rabies imported and to prevent the spread of the disease. They would, too, not interfere with the liberty of the subject—that much abused term—or with the importation of dogs. Now this Importation of Dogs Order does not apply to Ireland. It is a curious thing that that country seems to prevent the proper carrying out of any contagious diseases act in Britain. You know that at the present time we have swine fever in Ireland and also swine fever here. Yet the Board of Agriculture have not the pluck to prohibit the importation of pigs into this country. They try to evade responsibility by introducing a so-called Temporary Swine Importation (Ireland) Order. The use of the word "temporary," I suppose, is a sop to the Irishmen. But it has been renewed every month during the last eighteen months or more. What is the Order? It enables any county authority to prohibit the importation of swine from Ireland into any district under the authority's control. The only district into which the swine are imported is the port of landing. It is not at all likely that the authorities of any port which depends for its prosperity on its shipping trade, will interfere to prevent the importation of swine or their passage into the next county. I hold that it is even more important at the present time to apply an importation of dogs order to Ireland than to the European Continent. In Ireland there is nearly as much rabies returned as here, but I do not believe that half the cases are returned. If you look down the returns you will find these figures: Great Britain 672 dogs, 55 other animals; Ireland 263 dogs, and 95 other animals. I think the return as to dogs and other animals from Ireland is very disproportionate as compared with the returns for England. In England 12 dogs are required to infect one "other animal." In Ireland three dogs infect one "other animal." There are two

possible explanations. One is that rabies in Ireland exists amongst the drovers' and shepherds' dogs to a large extent, and that the sheep are bitten in considerable numbers and make up the "other animals." Another explanation is that not one-fourth of the cases of rabies in dogs occurring in Ireland are reported at all. When so large a number of "other animals" are reported, it is perfectly evident that there must have been a great number of dogs rabid to have bitten them. Assuming the existence of disease in this class of dogs, every cattle boat from Ireland brings dogs, the property of the drovers and shepherds in charge of the flocks and herds. These dogs accompany the cattle and sheep through the portal town to the market, and there is no knowing what harm they do. I think there is a great deal more in this than meets the eye, and that it is one of the factors that accounts for the prevalence of rabies in this country. Here (pointing to document) is a map, the darker part of which shows the larger number of cases of rabies. You will see that the darker part is round Liverpool which has the largest import trade of animals from Ireland. Three years ago one of the worst infected parts of Great Britain was Glasgow and its surrounding suburbs. Glasgow is another port with a large import cattle trade with Ireland. Southampton once showed the same prominence in these maps. No doubt this is owing to the importation of rabies from the Continent. As a matter of fact then, gentlemen, I am perfectly satisfied with the present regulation regarding rabies so far as it goes, but I think that now we have an Importation from Abroad Order the next necessary thing is an Importation from Ireland Order ; and, further, I think we should not wait until disease travels in a district, but that a muzzling order should be enforced on the appearance of any single case in any district. (Applause).

Discussion.

Mr. Hurndall said he had never approved of the system of muzzling as a means of suppression. And why? Because in the first place it involved great annoyance to the owners. But that, of course, would not hold water if there were not other reasons. He was not at all satisfied that muzzling had really been the means of suppression. Mr. Hunting described the use of the muzzle as a token and he (Mr. Hurndall) took it that that was all they required. They required a token to discriminate to whom dogs belonged—who were responsible for their care. Well, he considered that a token in the form of a label introduced into the dog's collar, bearing a number similar to that of the license, would be a far better means of recognising the ownership of a dog and tracing the responsible person who owned it than a muzzle that did not tell to whom the dog belonged, which could not be used without an immense amount of annoyance to the

owners, and which also (especially since wire muzzles were insisted on) was an extremely annoying thing for the dog itself. He should rather say an extremely irritating thing for the dog. He should like to see this idea of a label adopted. He thought it would be more satisfactory inasmuch as it would more certainly answer the description of a token indicating to whom the dog belonged. The plan would also, he thought, very materially enhance the revenue of the country. At present he thought they would all admit that there was a very large number of dogs running about the country whose owners, notwithstanding the vigilance of the police, were not possessed of licences. The police generally came to those who had licenses, and personally he had been pestered because when he went to Ealing it was found he had not taken out a license there, the fact being that he had procured a license previously in Kensington. If his suggestion were carried out in its integrity no dog could be owned without being licensed, and he was very sure the revenue of the country would be very largely increased. At the same time the owner would not be annoyed nor the dog irritated. Then there was another point as to where the muzzling order should be enforced. Mr. Hunting suggested that when the first case broke out there should be a muzzling order extending over a ten mile radius from the scene of the outbreak. If his (Mr. Hurndall's) plan were adopted no such restriction, no such troublesome and annoying procedure, would be required, because the entire country would be covered by his regulation. If there was any merit in stamping out rabies or any other disease at all, which he did not for one minute believe—he was not a believer in stamping out—then he maintained if it were done at all it should be done thoroughly and entirely all over the country. Mr. Hunting referred to the fact that a difficulty arose about certain dogs being exempted from those restrictions—such as a pack of foxhounds and other sporting dogs. Greyhounds were also mentioned. He assumed that all of them who were more particularly connected with sport knew that foxhounds were under restrictions ; and they might have recently read that the hounds in the Kennel of the Belvoir Hunt were to be subjected to the Muzzling Order, although there was never known to be a case of rabies in Leicestershire. If these suppressive measures were to be of any use surely they should be applied to foxhounds. He was a sportsman and knew how annoying it would be if one class of sporting dogs were to be exempted from restrictions that were imposed upon another class. He had been a coursing man and knew that greyhounds were not exempted from these restrictive measures. They were subjected to them save when coursing the hare. Greyhounds had to be taken from one place to another. Not so foxhounds and harriers. If his suggestion were adopted every foxhound would carry a slight

token round his neck without inconvenience. Some might say that the dog would incur the risk of being hung up in a hedge. That was a risk certainly, but the owners of foxhounds would only be placed on an equality with the owners of other dogs all over the country. He thought the results of the past showed that suppressive measures, as hitherto adopted, had proved unsatisfactory. They had to a certain extent, probably in London and other large centres, been the means of reducing the number of cases of rabies, because dogs that were either ownerless or whose owners had allowed them to escape, had been seized and taken to the Dogs' Home, and he thought he was right in saying that a much larger number had been destroyed than sold. Poor people, when their dogs escaped, were not sufficiently loyal to their dogs to run the risk of being fined for having kept them without a license. It might be that there were not many really ownerless dogs seized in London.

Mr. F. W. Dowell said that an idiot who wrote in *The Referee* under the name of "Dagonet," who wrote more twaddle perhaps than any other man on earth, stated that Mr. Long did not muzzle his sporting dogs. This was not the fact "Dagonet" knew or should know that Mr. Long was not sticking up for the dogs of sporting men or anybody else. If the President of the Board of Agriculture thought it necessary to muzzle sporting dogs he would doubtless muzzle them, but Mr. Long knew that every foxhound after feeding was passed through the doorway to his trencher, and his owner knew exactly the condition of every dog he had in his kennels. The foxhound was always under control. There was absolutely no danger with a pack of foxhounds. There could not possibly be an outbreak of rabies in a pack of foxhounds without the owner knowing it. The danger lies with the owner of a private dog. The private dog stole away, and his disappearance was not noticed for a time. No importance was attached to the event. The owner was indifferent. That was where the danger lay. In the case of a pack of foxhounds the dogs did not need to be muzzled. They were kept under proper care and oversight.

Vet.-Major Nunn thought Mr. Hunting hardly laid stress enough upon the extension of the Importation Order to foreign countries. He did not mean by foreign countries merely the European continent, but countries still further afield. They must remember that with improved modern steam machinery the voyages between far distant countries had been greatly shortened in duration. The run across the Atlantic now occupied about six days, and that from Bombay twenty-one days. His experience of the East taught him that it was a hotbed for rabies. During the last year he was in India he had twenty-two animals brought to him suffering from rabies. It must be borne in mind that in India the natives had a prejudice against killing animals, that

they were more tender with animal life than we were at home. In the East there were whole packs of absolutely ownerless curs wandering about. The 22 dogs that were brought to him were so brought by more or less well-to-do persons who were sufficiently interested in them to seek his aid, but the proportion of rabies existing amongst the ownerless packs of curs and jackals that roamed the country was appalling to contemplate. It was curious, however, that the number of cases of hydrophobia returned by the Indian authorities was not so great having regard to this fact. He accounted for the circumstance by the fact that the majority of cases of rabies in dogs certainly, and also in jackals in India, almost invariably assumed the form that was known as dumb rabies, with the jaw paralysed. Of the 22 cases brought to him one year only two of them were of the furious form of the disease. That was a significant fact. His opinion was that the East was a much greater source of the importation of rabies than was usually suspected. Mr. Hunting mentioned that Southampton had shown an unenviable notoriety in the matter of outbreaks of rabies. A large number of cases had occurred in the neighbourhood of that seaport within the last two or three years. During that time the whole of the troop service from India had been run into Southampton. Troopers were allowed to bring home a certain number of dogs, which were generally curs of the poorer description. While in India these dogs were allowed to run about under no supervision. Was it not possible that the bringing over of these dogs might have some connection with the fact that Southampton had incurred this unenviable notoriety in the matter of rabies. Mr. Hunting had alluded to quarantine. It was enforced in relation to dogs both in Australia and at Malta. In the colony of Victoria the system of quarantine adopted was a modified form of license. The owner of the dog had to declare his name and address, and he received an order to hold the dog. But it was kept under supervision and was not allowed to run about absolutely loose. In New South Wales actual quarantine was enforced for six months and at Malta for four months. Alluding to the two islands near each other, Réunion and the Mauritius, he said that while in the latter there was no restraint on the importation of dogs, in the former the restrictions were severe. While in Mauritius rabies was more or less prevalent, in Réunion the disease was unknown. At all events such was the case at the time of which he was speaking.

Mr. H. Edgar said that a client of his, a shipmaster, corroborated what Major Nunn stated about the prevalence of rabies in India, and he added that in China where a system of registration and labelling was enforced in the case of every dog, rabies was unknown. He (Mr. Edgar) believed that it would be an excellent thing if a similar system could be carried out in this country, for

then every unlabelled and presumably ownerless dog could be killed at any time of the year. His experience was that dogs preferred the wire muzzle to the leather muzzle, and in the case of his own dog the animal would approach to have the wire muzzle put on. Nor did the dogs rub the wire muzzles to get them off. With the improvements that were being made in the construction of the wire muzzle he predicted that all objection to it would soon disappear. His contention was that a dog should always be muzzled if they were allowed to run about without being led. His reason was this : that a quite harmless, inoffensive dog might be running along when it was suddenly attacked, without warning or provocation, by some ferocious beast, with the result that a fight ensued. A mild tempered dog not inclined to fight might go in peace if muzzles were generally worn. He considered there was a good deal of absurdity in the manner in which the Muzzling Order was enforced, and in this connection he instanced the fact that, whereas on one side of a street in the district in which he lived, the householders who were dogowners were required to muzzle their dogs, on the other side the inhabitants were free to let their dogs go unmuzzled. He would not wait for the appearance of a case of rabies before enforcing a Muzzling Order. Such order should be applicable to Great Britain and fully carried out, and supplemented by a quarantine in regard to imported dogs, he believed that if this were done rabies would soon be stamped out. He did not agree with the exemption of any class of dog. Even foxhounds had got bitten in some way, and several instances of rabies among this class of dog were recorded. Thirty or forty foxhounds taken out for exercise should be muzzled equally with the solitary dog taken along a street by its owner or other custodian. As to a shepherd's dog it might go free while on the mountain or hill side, or private ground collecting sheep, but as soon as it passed on to a public highway it should be muzzled. His belief was that the public objected to the Muzzling Order recently issued because everything was done in such a partial and uncertain manner. Lately the dogs had been allowed to go free for two or three weeks after being muzzled, and at liberty to indulge in fights, and then the muzzle was applied again. Why not keep the muzzles on when the dogs got used to them.

Mr. W. F. Barrett remarked that rabies was a very serious disease and they would, no doubt, all be pleased to see measures adopted that would effectually suppress it. He did not believe that rabies was so prevalent in England as was ordinarily supposed. During the twelve years he had practiced in London he had seen hundreds of dogs professionally but he had only come across one case as to which he was completely satisfied that it was one of rabies. No doubt many dogs were destroyed under the supposition that they were affected with rabies when they were not. His belief was that there

were no premonitory symptoms of the disease. As soon as the animal exhibited rabies in any form it was capable and should be deemed capable of causing infection, and should be regarded as dangerous. Personally he had failed to observe any special symptoms of rabies. Mr. Hunting spoke of a certain expression of the eye, but in the cases he (Mr. Barrett) saw while at College and subsequently in practice he had been unable to observe any special rabid expression. Mr. Hunting, in some of his remarks, appeared to be somewhat illogical. After speaking of possible lesion of rabies he went on to say that there was no rabies lesion. He said he could not lay his hand upon any organ or portion of the system of a dog and say it was affected with rabies, nor after death or post-mortem examination say that the animal suffered from this disease. His conclusions as to the existence of rabies seemed to be based on the presence of foreign bodies in the stomach. Those of them who had seen many dog cases and had made numerous post-mortem examinations knew perfectly well that in many diseases other than rabies dogs were very liable to swallow foreign bodies. In cases of epilepsy and other brain troubles, for instance, it was no uncommon thing for a post-mortem examination to reveal the presence of foreign substances. The mere presence of nails or anything else in the gastric organs did not necessarily indicate rabies, although he should regard the presence of those foreign bodies with a great deal of suspicion. As to suppressive measures he was prepared to go much further in this direction than Mr. Hunting. In his (Mr. Barrett's) opinion any dog known or suspected to have been bitten by an animal infected with rabies should be slaughtered. He did not believe in half measures. Having regard to the terrible nature of rabies and the fact that it was communicable to man, he thought they should adopt drastic measures in dealing with the disease, and treat lightly the protests of certain women and dog fanciers. A dog known to have been bitten by a rabid animal should be slaughtered, or at least subjected to six months quarantine. He thought it was desirable to institute a system of inoculation and that immediately a dog was suspected of rabies it should be taken to some local veterinary surgeon who would be capable of inoculating the animal and of ascertaining whether this suspicion was well or ill-founded. They were apt to make a mistake in their diagnosis and no one then present could, even on a post-mortem examination, say decisively and with precision that a dog suffered from rabies. But if a dog were inoculated and the fact of rabies was established beyond doubt then the animal should be slaughtered. Concerning the matter of radius, he should prefer a muzzling order applicable to the whole of Great Britain. He saw no objection to this at all. His experience of the muzzle was that dogs did not necessarily object to it. His own dog took to the muzzle very kindly. Mr. Hunting was

for timely measures, and pointed out that it was no use commencing to muzzle when the mischief was done. While, however, Mr. Hunting seemed to desire the muzzle, the inference to be drawn from some of his remarks was that the muzzle was no use. Either muzzling was beneficial or it was not. If beneficial, let them have an effectual muzzle. But for Mr. Hunting to tell a body of professional men that it was sufficient if the muzzle was hung across the ears or the loins of a dog, seemed to him (Mr. Barrett) to border upon the absurd. Mr. Hunting wanted the muzzle as a token and as a means of identification, as an evidence that the dog wearing it belonged to some one who cared for it. But Mr. Hurndall neither believed in muzzling nor stamping out contagious diseases. He (Mr. Barrett) was very pleased that Mr. Hurndall was not yet the president of the Board of Agriculture, because in that case the flocks and herds of this country would be in danger of decimation by numerous maladies that affected them. In view of the beneficial results that had followed preventive measures, it was an extraordinary thing for a member of the Royal College of Veterinary Surgeons to say that he did not believe in stamping-out. It was an opinion which they, as professional men, must negative. They knew perfectly well that preventive measures were far more effectual than remedial. But for preventive legislation they would hardly have had a flock of sheep or a herd of cattle left in this country. Mr. Barrett went on to say that he knew no reason why shooting dogs—he referred to pointers and setters—should not be muzzled. It might be a good thing for the sportsman if they were muzzled, as he was troubled not only with the possibility of his dog finding the game but also rushing upon it and worrying and destroying it. (Laughter). Foxhounds and greyhounds should, if a muzzling order were to be effective, be muzzled at work as well as at other times. As to a license attaching to an imported dog he did not think the conditions stipulated would be complied with. A lady might express her willingness to do anything so long as her pet was left with her, but on the morrow she might set it free in her park or garden to infect other dogs. He held that any dog imported into this country should be subjected to six months quarantine of such a character that nobody could mistake it. It should be periodically inspected by a veterinary surgeon. An imported dog in America had to undergo this period of detention. Mr. Hurndall thought muzzling was no good, but how did he account for the fact, which statistics proved, that rabies rose when no muzzling order was in vogue and was checked when a muzzling order was enforced.

Reply.

Mr. Hunting, in reply, said: Mr. Hurndall expressed his disapproval of a muzzling order, but went on to tell us that he acknowledged that a muzzling order had more

than once, and in more than one place, decreased the number of rabid dogs. That, I think, is evidence in favour of a muzzling order, and it only shows that the order was not enforced long enough. Mr. Hurndall says we require only a token in a muzzle. I agree we require only a token, but that token must be the best we can devise, and the question arises: what is the best token for a dog to wear? Now I believe a muzzle is the best token, and for many reasons. It is conspicuously displayed—it is on his head. The only other token as visible would, I think, be a green ribbon on his tail. But that would bring the order into ridicule, and therefore it would not do to adopt it. A muzzle on the head is visible whereas no token on a collar would be visible. There have, I believe, been found thirty cases of rabies in dogs discovered firmly muzzled. In these cases it is right to allow that the dogs have been prevented from biting; and that if they had not been muzzled when they became rabid, they might have bitten. Then there is another advantage the muzzle has, it wakens up the people; it arms "Dagonet" and Jerome and stimulates them to write. Thus is public attention drawn to the existence of the disease, and good is done by the publicity attained. The objection to a collar with the address on it is simply this: hundreds of people having dogs would leave his collar on while their dog was in the house and if the dog escaped there would be no token to show that he had escaped. The muzzle is taken off in the house and if a dog escapes he escapes unmuzzled, and the fact of his being unmuzzled marks him out for capture. Everybody knows that a rabid dog has a tendency to run away and to roam. Of course he is without his muzzle and the nearest policeman seeing this catches him or, what is better, knocks him on the head. Mr. Hurndall said that when an outbreak of rabies occurred in a district a muzzling order was immediately enforced, but his idea was that all dogs should at all times wear collars with the token he advocates. Hence his token would always be in force, and would not require to be enforced each time and in each place an outbreak occurred. It would be already in vogue. Quite true, but of what value would be his token in these circumstances. What indication would the token be that a dog might reasonably be suspected of rabies. All dogs would be wearing collars and labels alike. A collar with a token would not prevent a rabid dog from biting another dog, and a policemen would not know a dog was rabid unless he saw the dog in the act of biting. What we want to do is to catch a dog on the prowl without his muzzle. A muzzle is a thing which the owner will take off his dog as soon as it reaches home, whereas a collar token he would leave on. That is where a muzzle has an advantage over a collar token in the matter of detection. Mr. Dowell says that "Dagonet" writes more twaddle concerning dogs than any other

man living. I don't think so. I think Jerome takes the cake. (Laughter). It is a very strange thing that these two men—who are undeniably intellectual men—should write such utter rubbish about this disease. Jerome does not write as if he knew anything about rabies. He tells you distinctly that there is no such disease. He has found some stupid doctor who told him so ; hence he believes it ; and he goes out of his way to denounce Pasteur because in some way or other he connects Pasteur with rabies. (Laughter). Apparently he does not know anything about Pasteur save that there is an Institute in France called after his name. Mr. Dowell said that foxhounds were always under control and could do no harm, that disease amongst them was always detected, and that they were rightly exempt from the Muzzling Order. That is his opinion. What are the facts? In my own experience there have been five or six outbreaks of rabies in foxhound kennels. The Durham, Brighton, Queen's and Cheshire packs have all, in my recollection, been attacked with rabies. Now what was the start? In at least three of those outbreaks the kennelman, the huntsman, the master, everybody about the hounds failed to recognise the disease until a veterinary surgeon was called in. In the case of the Queen's I think it was only after three or four of the dogs were shot and killed that the disease was recognised at all. Just imagine what that means. Consider how many other dogs a rabid dog may bite in a kennel of twenty or thirty dogs. And the next day or the next week, long after the period of incubation has elapsed, those 20 or 30 dogs are taken all over the country. How many are rabid they don't know—nobody knows. If it were the rule that on the first appearance of rabies in a pack of foxhounds every one should be shot, I would agree with it. But that is never done. Major Nunn said that in other countries rabies is very prevalent. I was very much struck with his remark that the reliefs of troops in India during the last two or three years have been very large. This year Hampshire is an infected county. So it was last year and the year before. It may be that the curs which the soldiers landing at Southampton bring home with them from India are responsible for this. Mr. Edgar, quoting a ship captain whom he knows, stated that in China, where a collar and token is in use, rabies is unknown. Without corroboration of the ship captain's statement I am not inclined to believe that this is the actual state of things in China. Mr. Edgar thinks all dogs should be muzzled always, not so much for the prevention of rabies as for the prevention of dog fights. But everybody is not quite of that opinion. I remember when I was a little boy being taught by a gentleman who was probably much stronger on theology than natural history :—

"Let dogs delight to bark and bite
For 'tis their nature to."

(Laughter.) I don't know about that, but a general muzzling at all times seems to me a little strong. Then Mr. Edgar, holding the views he does, sees the illogical absurdity of having dogs muzzled on one side of a street and not the other. But the line must be drawn somewhere. Unless you muzzle dogs always and everywhere, and adopt a muzzling regulation of a general and absolute character, you must draw a line somewhere. The line must be a street, a river, or a field, or something definite. I do not believe there is any great hardship involved in the manner in which the line is drawn and the boundary marked, so long as there is a sufficient margin left between the infected district and that line or boundary. Mr. Edgar thinks the public object to these intermittent muzzling orders, and to the exemptions made. I believe he is right to some extent. I believe that the muzzle should be kept on until it is shown by statistics that, as a result of this, the disease is stamped out. When a muzzling order is kept in force three or six months after the last case of rabies, it will not be easy to grumble at a muzzling order when it is found that it has effectually done its work. What Jerome and "Dagonet" suffer from is a natural cussedness which makes them object to anything they don't understand or that touches their own tender place. Mr. Barrett does not think rabies is so prevalent as is supposed because very many cases are returned as rabies which are not rabies at all. Well, considering that he confesses he has only seen one case of rabies in his life—(Mr. Barrett: No, during my practice)—only one case during his practice, I am not surprised at anything he says about the disease. He says, having had experience of that one case, that he failed to notice the expression of the eye that I spoke of. I am not surprised. I did not notice the expression in my first case, or until forty cases after that. I would suggest to Mr. Barrett that, although there may be an occasional case returned as rabies which is not rabies, there are a few hundred that are not returned which are rabies, and the returns may not be far wrong after all. I should like to point out that for some time past every case of rabies returned to the Board of Agriculture has been seen by a veterinary surgeon and an autopsy has been made. In every case returned now a post-mortem examination is made by a veterinary surgeon. Under those circumstances I am inclined to think that if there is anything wrong with the returns they do not give the full extent of the prevalence of the disease. Mr. Barrett points out that the mere presence of foreign bodies in the stomach does not indicate rabies. Of course it does not. A spot does not indicate small-pox. There are plenty of lesions that do not indicate a specific disease. The fact of finding foreign bodies in the stomach is not a sure and certain diagnostic sign, but it is an aid to diagnosis to a man who understands what he is looking for. If he finds no other

disease and discovers something in the stomach of an unusual nature, and very little food if any there, and if he can get any description of symptoms at all, as a rule in 90 cases out of a 100, he will diagnose his case correctly. I will just give an illustration. I make a post-mortem of a fox terrier. I find a cork and two matches in his stomach. I examine carefully the whole of that dog and I find no sign of any other disease. I note that he is three or four years of age by his teeth. When tied to a table with a strap he was noted to stoop in a doubled up way. On the strength of these symptoms and conditions I gave a certificate that he suffered from rabies. Afterwards I forgot all about the case. Three months, subsequently, however, I get a coroner's summons to attend an inquest at St. George's Hospital on the body of a poor little boy who has died of hydrophobia, bitten by this very dog killed by a policeman. Mr. Barrett says he would go much further than I. He would have slaughtered every infected or bitten dog. I support the present regulations which Mr. Barrett apparently has not read. (Mr. Barrett : I will accept your quotation from it.) "The Local Authority shall," not may, "cause to be slaughtered every dog within every district which is diseased or suspected, or which has been bitten by a diseased or suspected dog." That, I think, is pretty strong. I think Mr. Barrett will not go further than that. (Mr. Barrett : No, that is far enough. Then Mr. Barrett asks why should one county be regulated while another is allowed to go free. Well, for the same reason that you lock up a thief and allow an honest man to go free. You regulate the county that has got rabies in it and not that which has not. Then he accuses me of an illogical position. He is very likely to be right, but is not this time. He says I seem to believe in muzzling but not in the muzzle, and seem to think that the muzzle would be just as well on the dog's loins as on his head. Now, he made a mistake. What I said was that I believe in a muzzling order and I believe in the use of a muzzle as a token, but I do not believe it is the muzzle *per se* which is the important point of the order. I do not believe that the muzzle prevents rabid dogs biting, but I believe that the muzzle is a token which, being absent, enables you to catch a rabid dog that has escaped from home, and you either seize him or kill him. (Mr. Barrett : But you might as well put it on his tail.) Except for making the order ridiculous it might just as well be put on his tail. If you did that everybody would laugh, but as it is everybody cries. Mr. Barrett takes a rather depreciatory view of the other sex. He regards ladies as a lawless class, and declares that having taken their pets home after subscribing to certain conditions they will afterwards pay no attention to their obligations. Well, they would not be trusted altogether. I think, however, only a few ladies answer Mr. Barrett's description. There would be, however, the local authority to look

after the ladies with dogs, there would also be the policeman on the beat, and the veterinary surgeon to the local authority. All these men will have orders to look after the lady and her pet, and to see that she carries out the regulations under a penalty for failure of £20 fine or, in default, three months imprisonment. (Applause.)

On the motion of the chairman, seconded by Mr. H. Edgar a cordial vote of thanks was accorded to Mr. Hunting for his address; and with a vote of thanks to the chairman, proposed by Mr. Barrett and seconded by Mr Samson, the meeting terminated.

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

The quarterly meeting was held at the Hop Market Hotel, Worcester, on Tuesday afternoon, May 11th. Mr. W. S. Carless, president, occupied the chair; and there were also present: Professor Pritchard, Messrs. F. L. Gooch, Green, Pemberton, Forsyth, Over, Grasby, Burchnall, Crowhurst, Collett, Dr. Manley, Wilson, Whyte, Merrick, Gibbings, Taylor, and H. J. Dawes, hon. sec.; visitors, Messrs. Cayless, Franklin.

Apologies for non-attendance were received from Professors Penberthy, Axe, Macqueen, McFadyean, Williams, McCall, Sir H. L. Simpson, Messrs. R. C. Trigger, Procter, Aris, Mason, Jones, Barling, Slipper, Spencer, Reynolds, Stanaway, Hodgkins, Blakeway, Crowhurst, Tailby, Hobson, Woolsten, Vet.-Capt. Marriott, Cartwright, Barling, Tinkler, Blunt, Olver, Green, Carless, Prickett, etc.

Previous to the business of the meeting, the members had lunch together by the kind invitation of the President, who went out of his way to cater admirably for the creature comforts of his guests. At the conclusion of the repast, Dr. Manley briefly proposed the health of Mr. Carless, and thanked that gentleman, in the name of those present, for his hospitality.

Mr. Carless, in replying, said the obligation was all on his side, and his only regret was that it had not been convenient for a greater number of members to be present.

Nominations and Elections

The minutes of the previous meeting were confirmed by the meeting, and duly signed by the President, and

The President nominated, as a member of the Association, Mr. Edward Franklin, of Worcester. The name will be submitted at the next meeting for election.

The President proposed, and Mr. H. J. Dawes, (hon. sec.) seconded the election of Mr. W. A. Stanway, 55 Merridale Road, Wolverhampton. This was carried.

A similar proposition was also carried, on the motion

of the President, seconded by Mr. Collett, securing the election of Mr. C. J. Byner, of Birmingham.

The Use of the Instruments.

The Hon. Sec. (Mr. H. J. Dawes) moved "That a new rule be drawn up prohibiting members borrowing the instruments of the Association for a longer period than seven days." He had received numerous complaints from members who had been unable to obtain certain instruments, simply because other members had not returned them when borrowing them. In fact since he had given notice of the present motion, one member had borrowed an instrument and kept it two months.

Mr. Green seconded, but thought an exception might be made in the case of Smith's expanding shoe, as seven days was hardly long enough to see whether an animal had derived any benefit from the shoe.

Mr. Gibbings: Why not make the limit 14 days? That would allow for everything.

The Hon. Sec. : I have no objection to the time being extended to 14 days. All I want is a limit of some kind, so that I know what I am doing.

The motion was then altered, by consent, so that the limit was 14 days, instead of 7, and it was carried unanimously.

The Election of Council.

The Hon. Sec. read letters from the Eastern Counties and the Lancashire Veterinary Medical Associations, in reference to the forthcoming election. In the case of Lancashire, there was a request that inasmuch as the Midland Association had no candidate of their own the two should issue a joint circular in the interests of the candidate whom the Lancashire was bringing forward.

The President suggested that the letters lie on the table.

Mr. Green said he could not see his way to agree with that suggestion. If this Association do not intend running a candidate of their own, they could not do better than help a neighbouring association, as the time might come when they would want help themselves.

Mr. Collett agreed with Mr. Green.

The Hon. Sec. pointed out that to join in the issue of a joint circular would involve them in a share of the expense. Were this Association prepared for this?

Mr. Green said that as the expense would be comparatively small, he begged to move a resolution to the effect that this Association joined in the issue of a circular.

Mr. Gibbings seconded.

Professor Pritchard : I don't think this Association will be asked to contribute towards the cost, as they will be deriving no benefit from the circular.

The Hon. Sec : I think they will. Such a thing is ustomary.

Eventually, on a vote being taken, Mr. Green's resolution was carried.

PRESIDENTIAL ADDRESS.

By Mr. W. S. Carless.

Gentlemen,—I thank you most sincerely for the honour you have done me, in electing me your President for the ensuing year, the more so because my family have been so long connected with your Society. I find that in the sixties my grandfather was the president, and in 1883 my uncle, and I feel proud that you should have unanimously elected me this most important year of Her Majesty's Reign, and I hope it will be an important year for our profession, that something will be done to commemorate the Diamond Jubilee of Her Majesty that will benefit our profession as a whole. I should like to see formed a veterinary benevolent society, which would help the wives and children of those members who, from accident or other causes, are not able to provide for them. There may not be many cases but I know there are a few, and some are hard ones, and I do think a Society formed on the lines of the Masonic charities would work.

I can assure you that I shall do all in my power to make this year a success for our Society. I hope we shall have good papers read, that we shall have good attendances, and good discussions. I have been sorry to see of late so few of the old members present. No one knows better than myself, how, let our intention be ever so good, something is sure to turn up on the day of meeting, which, if we neglect we shall spoil the day-book for that day; but when we think we only have four meetings a year, I do maintain that with a little extra exertion on our part we could manage to do the work of the meetings. We are pleased to see the young members, but we also want the old practical members to join in the discussions and to give weight to our meetings, and I hope that during my year of office I shall see more old faces around me.

I believe it is customary on these occasions to touch on the politics of our profession, but we are so well represented on the Council that I will not waste your time, but I do say that our present Council is one of the best representative ones we have ever had, quite different to what it was when I joined the profession 19 years ago, though we hear that they do not now always do right; that they pass bye-laws at one meeting, and try to rescind them at the next. If this is so, I think it shows that when they find they have made a mistake they have the courage to try and put it right.

Thanks to my friend, Professor Pritchard, who I know has come amongst us at great inconvenience I shall not, gentlemen, detain you longer, and I hope that at the end of

my year of office, with the help of my officers, you will not regret in electing me your President.

The Hon. Sec. said he begged to move a vote of thanks to the President for his address, and coupled with it a request that it may be printed and published for the benefit of absent members.

This was seconded by Mr. Crowhurst, and unanimously carried.

"SOME HORNS."

Address by Professor Pritchard.

Professor Pritchard said : On a recent occasion, in addressing a meeting of this description, or rather afterwards, I was twitted that I had not brought anything forward that was new. Well, now, I can assure you that I am not going to attempt to do so this afternoon. My experience is that when anything particularly new is brought forward, a great deal of skill is required to make people believe that it is absolutely true. Therefore, I shall only attempt to remind you of some little things in connection with horns, and I hope that in the few remarks I have to make to you, I shall say something or other which will give rise to a discussion. I have already had one at the luncheon table, and I think I shall be sufficiently annoying to create another in this room. I may tell you, in opening, that I do not intend to detain you very long. I believe long speeches are like long sermons : they should have a great deal of backbone in them to make them interesting.

To begin with, the surface of the body is covered with a material which is spoken of under the term epidermis, and under certain conditions this epidermis becomes so condensed as to produce what we call horn, in some form or other. In the human being, even, we have nails on our fingers and toes, and we have those little interesting appendages of the body, as age creeps on, which we call corns. And if we go to the other animals, animals of any size, we shall find something of this kind. All the feline tribe and the canine tribe have claws ; the sheep, the cow, the goat, and other animals have horns, and even the scales on fish are nothing more or less than epidermis in a condensed condition. In the larger animals we get even greater demonstration of this. Take, for example, the horse. The growth from the lower part of his foot, which we call the hoof, is nothing more or less than a condensed form of epidermis. If we examine the internal surface of the arms and hocks, we shall find horny growths, and there are horny growths in horses on other parts of their body, especially in coarse bred animals.

But passing from these animals and turning to absolutely the subject of the paper "Horns," I shall tell you that we find in animals generally three kinds of

horns. I distinguish them in the way in which they are produced and nourished. Many of our stags grow a horn from a coronary secreting substance, which horn will grow to a considerable length, and in some cases to a considerable weight—not straight or single horns, as we are in the habit of seeing on the heads of cattle and sheep, but horns with a variety of branches or lines. These all grow from a coronary secretive substance in some instances not more than an inch and a half to two inches in diameter, while some animals will grow horns from 60 lbs. to 70 lbs. weight in a year, which gives you some idea of the rapidity with which this material will grow. The horn is shed once a year. The leaf at the end of the year falls from the tree, and it is not every child that goes to the board school that can tell you why that leaf so falls. The new bud shuts off the supply of nutritive material to the old leaf, and as a consequence of the loss of this nutrition, the old leaf falls from the branch. In a very similar way, though not exactly, the old horn falls from the heads of the animals of which I have just been speaking, and the new horn at once commences to grow. That is one kind of horn we meet with, and I may make it familiar with you by awakening in your minds the fact that we have buck-horn handled knives made of this kind of horn.

We have another kind which receives its nutriment in another way altogether. We find that this horn is covered on its external surface by a layer of soft material, presenting not only a velvety appearance but also a velvety feeling, as vascular as the skin which covers the animal's body. That horn is a permanent one. It is seen in some reindeer, but you can't get a better example of the kind than the horn on the giraffe.

But the horn with which we have more particularly to deal is that which grows from the head of the ox, the sheep, or the goat. Here we have a horn with what is commonly called a core, the base of which is a piece of bone, the external surface of this bone is covered by a layer of vascular structure, as vascular as the sensitive laminæ on the internal surface of the horse's hoof. Take the case of the ox, it commences to form after about 3 or 4 months of fœtal life, and when the calf is born, there is a distinct nodule on the head where the horn will grow from. It has simply then pushed off the epidermis. It is lined on its internal surface by a small portion of soft structure and as it grows, the epidermis becomes thickened until ultimately, in the course of three or four months, depending to a great extent upon the breed of the animal we get a well-defined short horn. The growth continues for a period of three or four years and up to which time the whole of the horny portion is in apposition with the core.

(Prof. Pritchard here pointed out in his sketch the fact that the inside or core of the horn was continuous with the cavities in animal's face, and he said that the

inside of the horn was as vascular as the inside of the nasal chamber). After the animal has lived 5 or 6 years, the horn grows for some little distance beyond the core, but up to the period of 3 or 4 years, the whole of the internal surface of the horn is occupied by a sensitive structure, and it is one of the most sensitive structures in the ox's body. So much for the anatomical structure of the horn as we have to deal with it in the ox, and the same thing applies to the sheep and the goat.

One other matter is the indication of age, which we can obtain by the appearance of the horn, and also the indication of the sex. Take sex first: if we examine the horn of animals, (I am speaking now of the bovine species) we shall find that the male has a short, ugly horn. It usually grows very large at its base and curves inwards, the points going towards the centre of the forehead. If you castrate that animal early in life, it will grow a different kind of horn, and be a much better looking one, independent of breed, smoother on its external surface and far more pointed. On the subject of age, when the animal is two or three years old there appears a ring, and every year or two afterwards, these rings multiply. If you find that an ox has, say two rings upon its horns, you may put $2\frac{1}{2}$ or 3 years on to that and fairly came to the conclusion that the animal is from 4 to 5 years old.

There are animals, which we call polled animals, grow no horns. Some years ago the Royal Society for the Prevention of Cruelty to Animals, determined to see if they could not put a stop to dishorning, and I need not tell you that I thoroughly agree with the attempt they then made. I was extremely pleased to find that although the Society got beaten in Norfolk in the first trial, the appeal which was made was won. The late Lord Chief Justice Coleridge and Mr. Justice Hawkins gave a judgment which I should like our docking friends to look up. Their judgment was to the effect that to dismember an animal of any part of its body, unless it could be positively proved that it was for the benefit of the animal or for other reasons necessary was an act of cruelty. With regard to the dishorning of cattle, I regret that up to the present the Society have been beaten in Scotland and Ireland, I put it to you, as scientific gentlemen, if you have listened to what I have said with reference to the manner in which the cow's horn is built up, its internal surface, possessing a core of the most vascular character, and I defy contradiction that the structure is highly sensitive, whether the operation is an exceedingly painful one. Interfering with that horn is the same to the ox as interfering with the finger nails in the human subject. Yet certain people would saw the horn off. Just try to imagine the pain which the poor animal must suffer as the teeth of the saw goes through the horn. You are also subjecting that animal to pain for months during the recovery process, if the animal

ever does recover. The argument in favour of the practice is that you can put more animals in the same space by taking the horns off. I don't deny that ; but are you justified on that account? It is said also that unless the animals are dishorned they will gore each other, and more pain will ensue ; but all animals, whether fighting cocks or horses, or anything else, will soon find out who's master. It is their nature. If you saw the horn off an animal that is eight or ten years old, you have a chance of selling that animal as a two or three-year-old ox, for unless a man looks into the mouth of an animal, it is only by the horns that you can recognise its age.

Discussion.

Mr. Gooch opened the discussion with a few general remarks complimentary to Professor Pritchard. As regarded the anatomical portion of the address, he had nothing to say, but he was glad the question of dishorning had been touched upon. As a Norfolk man himself he was surprised to read the report of the trial which the Professor had referred to, and especially was he surprised to see the attitude taken up by the dealers, as he thought there was so little dishorning in Norfolk. They imported a large amount of Irish cattle in Norfolk for the winter months. If the dishorning took place when the animal was young, he did not think there was a great amount of cruelty attaching to it. It would certainly not be as painful as sawing off the horns of an old animal, which he considered a very cruel operation. One of the principal reasons urged against it was that it facilitated deception, but he thought the chief thing was that polled animals fetched better prices. He agreed, also, with the professor that animals without horns occupied less space. If it is an old animal, it could not be dishorned without some trace being left of the operation, but if it was a young animal, and the operation was done properly, it would be hard to tell whether or not it was born polled.

Mr. Green said he had listened with great interest to Professor Pritchard's address, for it had done much towards rubbing up his knowledge of horns which he acquired in his student days. It was also useful to them as practitioners, because it was a well-known fact that their opinion was often asked in the case of accident, as to the probable chances of recovery and of the growth of a new horn. Unless they understood the process by which a horn grew, they could not give a true and honest opinion as to what was likely to take place afterwards. On the subject of dishorning, he had had no experience whatever.

Mr. Pemberton said he had enjoyed Professor Pritchard's address thoroughly although, like the previous speaker, he had had no experience in dishorning cattle. He agreed that it was a gross cruelty to dishorn cattle, but the cruelty was reduced to a minimum when the

operation took place at an early age. With reference to docking, which the Professor just alluded to, they knew there was a difference of opinion as to whether it was cruel or not. He (Mr. Pemberton) thought the pain was very slight if the docking took place at an early age, say from three to six months, and in his practice, whenever he was asked to dock, he also gave that advice. The young animal did not feel the pain to the same extent as the old one. If docking was to be done, however, it was important that it should be done by a professional man, and then they would shut out farriers and blacksmiths, who did not really understand the nature of the operation.

Mr. GIBBINGS : I don't think I have heard Professor Pritchard since I left College twenty years ago, but he has lost none of his vigour or powers of elucidation. I have enjoyed his address very much and am only sorry I cannot add to the discussion.

Mr. MERRICK : I have never been asked to dishorn cattle in my life, and therefore I am also unable to speak on the subject. Nevertheless I think it is a very cruel operation, and if it is to be done at all it should only be upon young animals.

Mr. OVER : I have had to remove horns when they have been growing inwards, but never otherwise. I have certainly found great sensitiveness. I should regard it as an act of great cruelty to dishorn an aged beast.

Mr. CROWHURST : I should certainly think the operation conducive to pain in an aged animal.

Mr. GRASBY : I think dishorning is a very cruel measure to adopt. I have seen cases where it has been necessary to amputate the horn for certain reasons, but dishorning, as a regular thing, I have never had any experience of.

Mr. TAYLOR said it appeared to him that the older members of the profession were entering into a tirade against something which they no doubt did themselves in their younger days. He thought the majority of the operations performed by young practitioners were distinctly cruel.

Mr. BURCHNALL : I have had no experience of dishorning, but I can quite believe it is a most cruel thing. I have noticed when a horn has been broken off at the end that the animal has been breathing through the opening and throwing out blood also. If dirt or any foreign matter got in, it would set up a state of things which would do the beast considerable harm.

Dr. MANLEY said that his patients did not require dishorning, but that fact did not detract from the merits of Professor Pritchard's address from his (the speaker's) point of view. He was extremely interested in the physiological and anatomical points of the address, particularly the description of the growth of the horn, because one had seen in human beings horns which had

to be removed because of the disfigurement they gave to their owners.

Mr. Wilson said he was sorry he could not take part in the discussion, but he had had no experience in dishorning.

Mr. Collett said he would have liked the Professor to tell them why horns were cast in some animals and not in others. It was a common belief that the stag threw his horns away when he no longer wanted them to protect his mate and her young. In reference to the judgment of the late Lord Chief Justice and Sir Henry Hawkins, castration was an act of dismemberment which was not for the animal's benefit. How was it that that operation was not put a stop to by the Society for the Prevention of Cruelty to Animals?

Mr. H. J. Dawes (hon. sec.): I should like to join in the chorus of thanks that has been raised in Professor Pritchard's honour, for I believe his address will be found to be instructive as well as entertaining. I have had no experience whatever in the dishorning of cattle, but reference has been made to the subject of docking, and in view of the prosecution of a member of this profession, I have taken considerable interest in the matter. I have been to the trouble of asking every member I have come in contact with his opinion as to whether docking is cruel or not, and without a single exception I think everyone has been in favour of it if done by a properly qualified veterinary surgeon. It seems strange to me that a member of the profession should be summoned for performing an operation in which practically the whole profession agree that, if properly done, it is a justifiable operation.

Mr. Gooch, who apologised for rising a second time, said they often saw cows with brass on their horns, to prevent them goring each other. They were frequently called upon to take a portion of the horn off and screw in a brass ball. There was no doubt the operation caused a certain amount of pain while it lasted, but it prevented one animal goring another and thus greater pain was saved in another direction.

The President: I am personally very much obliged to you all for coming to Worcester to-day and particularly to Professor Pritchard for giving us such an interesting address. I have had no experience myself in dishorning cattle, but I can readily believe that it is a cruel operation. I agree, also, that if it is performed when the animal is young nothing like the same amount of pain is inflicted, and it is then also much more effectual. I have a young heifer that slipped down and knocked a portion of her horn off, but she appeared to suffer no pain and has gone on all right. We have seen animals that have had their horns knocked off and the part has been rubbed with tar, after which no trouble is experienced. I don't quite see how we can describe docking and dishorning as the same thing. Dishorning cattle is

much more cruel than docking, and docking, when properly done, is not the cruelty we have heard so much about of late.

Professor PRITCHARD, in responding to the various speakers, said he would rather that the discussion had taken a channel in reference to horns generally, than to the subject of dishorning. He was glad to find them in agreement with him that dishorning cattle at anything like an advanced age was an act of cruelty, but taking the bud of the horn out of the calf was no more cruel than vaccinating a child. If it was properly done, little pain was created, and the horn would not, as a rule, grow again. It seemed to him, however, that to saw a horn down to the core. and then put a brass nob on it, was an act of cruelty. With regard to docking, it was rather outside the subject of his address, and there seemed almost to be an attempt to draw a statement out of him, but he declined to show his cards on the present occasion. He would tell them, however, that in his opinion docking was an act of cruelty, and if this Society, or any member of it, cared to challenge him, after the trial which was then pending had concluded, he should be very happy to take up the subject at another meeting and endeavour to prove that the act of docking was a cruel one. It was as cruel as taking off a horse's ears, a practice which was in vogue many years ago and which had been carried into effect in the case of the pony which his father first gave him to ride upon. One of the speakers referred to castration as an act of dismemberment which was not for the animal's benefit, and on that account asked why, according to the judgment of the late Lord Chief Justice and Sir Henry Hawkins, the practice was not put down as cruel. He (the Professor) did not repeat that judgment to them, only the pith of it, and to put it in another way, he would ask, did the end justify the means. Whether it was due to atmospheric influences or breed, it was none the less a fact that if horses in England were not castrated it would absolutely be unsafe to be in the streets. Breathing through a broken opening in the horn was what he had seen himself.

Mr. GOOCH moved a vote of thanks to Professor Pritchard for the kindness he had shown this Society in coming amongst them to address them.

This was seconded by the PRESIDENT and carried unanimously, Professor PRITCHARD briefly acknowledging the compliment.

On the motion of the HON. SEC., seconded by Mr. Burchnall, a vote of thanks was also accorded to the President for his services in the chair. The meeting then broke up, the members taking tea together, before departing for their homes.

H. J. DAWES, *Hon. Sec.*

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Will be held in the TOWN HALL, READING, on AUGUST 11th and 12th, 1897.

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